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# **Social progress orientation and innovative entrepreneurship: An International Analysis**

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**Abstract:** Using the institutional approach, this paper examines the influence of social progress orientation on innovative entrepreneurship from an international perspective. Using a multiple linear regression model with cross-sectional information from the Global Entrepreneurship Monitor, the Indices of Social Development, the World Values Survey, the Hofstede Centre, the United Nations Development Programme and World Development Indicators, we find that social progress orientation dimensions such as voluntary spirit, survival vs. self-expression values and power distance were related to entrepreneurial activity. More specifically, the main findings demonstrate that high voluntary spirit had a positive and statistically significant impact on innovative early-stage entrepreneurial activity (TEA). In addition, necessity-driven TEA is highly discouraged in those societies with high voluntary spirit and self-expression values, whereas larger power distance increased the entrepreneurial activity driven by necessity. Based on these results, this study advances the literature by introducing and analyzing the concept of social progress orientation, by examining the factors that influence innovative entrepreneurial activity in light of an institutional approach. Also, this research could be useful for designing policies to foster entrepreneurial activity in different national and regional environments.

**Keywords:** Entrepreneurial activity, social progress orientation, institutions, postmaterialism, Hofstede, development.

**JEL Classification:** I31, L26, O15

## 1 Introduction

The academic literature has been paying increasing attention to the phenomenon of firm creation in the last decade, and, more specifically, innovative entrepreneurship (Acs and Szerb 2007; Aparicio et al. 2016a; Carree et al. 2007; Freytag and Thurik 2010; Fritsch 2011). This specific recognition is due to the fact that the phenomenon of innovative entrepreneurship has a positive impact on the generation of economic development and social progress at the country level (Acs et al. 2004; Acs et al. 2008b; Amorós and Bosma 2014; Aparicio et al. 2016b; Carlsson et al. 2013; Reynolds et al. 2005; van Stel et al. 2005; Wennekers and Thurik 1999; Wennekers et al. 2005) and at a regional level (Audretsch et al. 2008; Bosma 2009; Dejardin 2011; Feldman 2014; Fritsch 2011).

Traditionally, the definition of social progress has been based on economic terms (GDP-oriented). However, a more people-oriented approach has been attracting the attention of scholars in recent years (Engelbrecht 2014; Porter 2013; Stiglitz et al. 2009). For instance, the Social Progress Index (Porter 2013) aims to measure progress beyond GDP using an index that aggregates three dimensions: basic human needs, the foundations of well-being, and opportunity. Other recent initiatives, such as the Indices of Social Development (ISD) of the Institute of Social Studies (ISS), focus solely on the values that promote human well-being. Building on this initiative, social progress orientation (SPO) can be seen as accounting values beyond economic terms that promote social well-being. The extant literature has examined the impact of factors related to SPO on innovative entrepreneurial activity from different approaches, but has lacked an explicit and integrative approach. In this regard, some authors have used social capital (Anderson et al. 2007; Kwon et al. 2013; Leyden and Link 2015), others postmaterialist and social values (Turró et al. 2014; Uhlaner and Thurik 2007), subjective well-being (Naudé et al. 2013), life satisfaction (Naudé et al. 2014), power distance (Shane 1993) and masculinity vs. femininity (Baum et al. 1993).

Given that the factors that determine innovative entrepreneurial activity are analyzed by academia from different approaches (Bruton et al. 2010; Freytag and Thurik 2007; Verheul et al. 2002), institutional economics can be a useful approach to understanding the environment created by institutional arrangements and their effect on innovative entrepreneurship at a national level (Aparicio et al. 2016a; Urbano and Alvarez 2014). Moreover, at a subnational level, the importance of the regional environment for entrepreneurial intentions and activities has been recognized, since there may be cultural differences promoting variation in entrepreneurship and innovation (Bosma 2009; Feldman 2014; Fritsch 2011;

Glaeser et al. 2010; Saxenian 1994; Stuetzner et al. 2014). Nonetheless, although an increasing number of authors make use of it, still only a few empirical studies rely on this approach (Álvarez et al. 2014; Manolova et al. 2008; Stenholm et al. 2013). According to North (1990, 2005), institutional factors can be categorized as formal (procedures, laws, regulations, constitutions, etc.) and informal (role models, values, beliefs and attitudes commonly known as culture). In this context, SPO is classified among the informal institutions.

Therefore, this paper seeks to examine the influence of SPO on innovative entrepreneurship using an international analysis. In this regard, innovative entrepreneurship has been deemed the total entrepreneurial activity that includes market innovation, consistent with Schumpeter's (1911) definition of an innovative entrepreneur. Total entrepreneurial activity (TEA) driven by opportunity is another approach for innovative entrepreneurial activity (Aparicio et al. 2016a; Reynolds et al. 2005). According to these authors, entrepreneurs who are motivated by opportunity perceptions tend to experiment with innovative processes to carry out their new businesses, which is another of Schumpeter's (1911) definitions. Nonetheless, given that there also exists the counterpart of opportunity TEA, defined as entrepreneurial activity driven by necessity (Reynolds et al. 2005), these two measures are additionally analyzed for each economy (Acs et al. 2008a; Block et al. 2015; Fuentelsaz et al. 2015). Cross-sectional data from the Global Entrepreneurship Monitor (GEM) on innovative entrepreneurial activity for the year 2012 is used in this research. For the explanatory variables, the World Values Survey (WVS), the Hofstede Centre (HC) and an unexplored database to date, the ISD, are used. Control variables can play an important role in this study since different levels of development have been associated with differences in the entrepreneurial activity across countries (van Stel et al., 2005; Verheul et al. 2002). Thus, the Human Development Index (HDI) from the United Nations Development Programme (UNDP), as well as the percentage of female population, GDP, health expenditures, age structure of population and unemployment rate from the World Development Indicators (WDI) of the World Bank, serve as controls for the unobserved effects of development not considered in the SPO.

The main findings, on the one hand, demonstrate that high voluntary spirit positively affects innovative entrepreneurial activity; and on the other, voluntary spirit and self-expression negatively impact entrepreneurship driven by necessity, while high power distance increases this sort of entrepreneurship. Thus, this empirical study contributed to the literature by advancing the application of an institutional approach to understand the determinants of innovative entrepreneurship, and other types of entrepreneurial activity at the country level (especially driven by necessity). Also, these new insights may be useful for the

design of policies on the promotion of entrepreneurship based on innovation, and public strategies to control the entrepreneurial activity driven by necessity, with the former considered to be an important driver for economic development (Aparicio et al. 2016a; Audretsch et al. 2008; Baumol 1990; Carlsson et al. 2013).

The article is structured as follows. After this brief introduction, in the second section we review the literature on SPO and innovative entrepreneurial activity, and propose the hypotheses. The third section presents the details of the research methodology. The fourth section discusses the empirical results of the study, while the fifth section comments on some policy implications. Finally, the article points out the most relevant conclusions and suggests future research lines.

## **2 Conceptual framework**

According to Schumpeter (1911), innovative entrepreneurial activity is an important element for the creation of development across nations. In this context, the entrepreneur is seen as the agent of change who can contribute toward progress and technology transformation through innovation (Teece 1986). Thus, entrepreneurial activity is a valid conduit for the establishment of new activities that promote economic performance and new jobs, as well as ensuring the well-being of society at regional and national levels (Acs et al. 2012; Audretsch et al. 2008; Avlonitis and Salavou 2007; Beugelsdijk 2007; Busenitz et al. 2003; Carlsson et al. 2013; Díaz et al. 2013; Feldman 2014; Ribeiro Soriano and Peris-Ortiz 2011; Urbano and Aparicio 2016; van Praag and Versloot 2007; Wennekers and Thurik 1999). Examining the factors that encourage innovative entrepreneurial activity has attracted the interest of academics and others in different fields and with different perspectives (Audretsch 2012; Shane and Venkataraman 2000; Thornton et al. 2011; Veciana and Urbano 2008; Verheul et al. 2002).

As mentioned above, some studies have posited that entrepreneurship based on innovation can contribute to the progress of society. However, our focus approaches the problem from the opposite direction. We have been interested in analyzing the impact of SPO on innovative entrepreneurial activity, as well as opportunity and necessity driven entrepreneurship. In order to conceptualize SPO, some of the existing definitions and measurements of social progress have been revised as follows. Traditionally, these definitions and measurements have been based on GDP. However, a more people-oriented (well-being and life satisfaction) approach has recently attracted the interest of international organizations and scholars (Alkire and Santos 2010; Engelbrecht 2014; Porter 2013; Rojas 2011; Stiglitz et al. 2009).

In this context, the United Nations (UN) defines social progress<sup>1</sup> as a set of economic and noneconomic achievements (poverty, inequality, education, healthcare, nondiscrimination, freedom of choice, among others) for which regions and countries have a duty to fight. This organization annually publishes the Human Development Report in which the HDI plays an important role. Similarly, Porter (2013) proposed the Social Progress Index, which is meant to measure “the capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and to create the conditions for all individuals to reach their full potential” (Porter 2013, p. 41). This index contains three dimensions: basic human needs (nutrition and basic medical care, air, water and sanitation, shelter and personal safety), foundations of well-being (access to basic knowledge, information and communications, health, wellness and ecosystem sustainability) and opportunity (personal rights, access to higher education, personal freedom and choice and equity and inclusion). These examples suggest that social progress might be a multidimensional concept. In this sense, existing research deals with some of its dimensions, but still not in an integrative manner and never referring explicitly to SPO.

While some authors have studied the impact of education (Acs et al. 2009; Arenius and Minniti 2005; Bergmann and Sternberg 2007; Blanchflower 2004; Block et al. 2013; Davidsson and Honig 2003; De Clercq and Arenius 2006; Koellinger 2008; Lee et al. 2004; Levie and Autio 2008; Robinson and Sexton 1994; Shane, 2000) and the effects of social security entitlements related to welfare on innovative entrepreneurial activity (Freytag and Thurik 2007; Henrekson 2005; Hessels et al. 2007, 2008; Parker and Robson 2004), a substantial part of the existing research has been devoted to economic determinants (Acs and Szerb 2007; Carree et al. 2002, 2007; Gries and Naudé 2010; Wennekers et al. 2005; Wennekers et al. 2007; Wong et al. 2005). In this sense, extant research suggests a relationship between early-stage entrepreneurial activity and the level of economic development (Carree et al. 2002; Prieger et al. 2016; Wennekers et al. 2005). Accordingly, entrepreneurial activity, especially innovative entrepreneurship and the TEA driven by opportunity<sup>2</sup>, has been found in highly developed countries (see Annex 1 and Annex 2, panel a) characterized by the innovation-driven stage, whereas entrepreneurship driven by necessity was found in low- to middle-income countries characterized by

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<sup>1</sup> According to the “Declaration on Social Progress and Development” by the United Nations (UN) General Assembly resolution 2542 (XXIV) of 11th December 1969.

<sup>2</sup> GEM distinguishes between opportunity and necessity entrepreneurial activity (Amorós and Bosma 2014). Entrepreneurial activity driven by opportunity is characterized by the prevalence of improvement motivations (being independent and increasing income), whereas necessity is defined by survival motivations (no other job-paid options).

the factor-driven and the investment-driven stage (see Annex 3, panel a) (Amorós and Bosma 2014; Gries and Naudé 2010; Liñán and Fernandez-Serrano 2014).

The analyzed research offers a broad perspective of social progress based on a set of economic and noneconomic achievements. However, the ISD<sup>3</sup> envisions this as only noneconomic outcomes related to certain social norms, such as civic activism, intergroup cohesion, clubs and associations, interpersonal safety and trust, gender equality and inclusion of minorities (Foa 2011; Foa and Tanner 2012; van Staveren et al. 2014; Webbink 2012). Building on this, SPO can be seen as the values beyond economic terms that promote social well-being. In this sense, institutional economics (North 1990, 2005) can provide the foundations to link SPO with innovative entrepreneurial activity. Institutional economics is considered an appropriate and promising theoretical framework for the analysis of environmental factors that condition new business creation based on innovation and opportunity seeking (Bruton et al. 2010; Hayton et al. 2002; Salimath and Cullen 2010; Thornton et al. 2011; Urbano and Alvarez 2014). According to North (1990, p. 83), “the agent of change is the individual entrepreneur responding to the incentives embodied in the institutional framework.” The theoretical approach refers to the humanly devised constraints that influence individual behavior. Accordingly, this framework comprises formal and informal institutions (North 1990, 2005). Formal institutions are regulations, constitutions and laws, while informal factors are defined as the set of values, beliefs and attitudes embodied in the culture of a society. Therefore, the process of becoming an entrepreneur is highly conditioned by formal and informal institutions (Veciana and Urbano 2008, p. 373). Thus, taking into account the institutional approach as a theoretical framework of reference, SPO pertains to informal institutions. As mentioned, the values behind SPO are beyond economic terms. In this regard, the existing literature examines the impact of subjective well-being and life satisfaction on innovative entrepreneurial activity and its different types (either opportunity or necessity). For instance, Naudé et al. (2013) found that the difference in favor of opportunity-driven entrepreneurship compared to the necessity-driven one improves with non-economic well-being. Following that perspective, Naudé et al. (2014) found that life satisfaction and innovative entrepreneurial activity follow a bicausal relationship. On the one hand, innovative entrepreneurship impacts life satisfaction, and this impact is characterized by an inverted U-shaped relationship. Similar analysis has found this at a regional level, since it has been argued that hard work and high-ambition generate a better life (Beugelsdijk 2007; Bosma 2009). As a result, innovative entrepreneurial activity and entrepreneurship driven by opportunity lead to life satisfaction and happiness (Binder and Coad 2013; Block and Koellinger 2009), until a certain point is reached

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<sup>3</sup> These indices were developed by the ISS of the Erasmus University of Rotterdam to track globally the informal institutions that contribute to well-being.

where an excess of these types of entrepreneurial activity can lead to highly competitive market conditions and to dissatisfaction. On the other hand, higher levels of life satisfaction were positively related to entrepreneurship (Naudé et al. 2014). Others authors, such as Florida (2002), Lee et al. (2004) and Turok (2004), posited that enhanced social environments can attract talented human capital, innovativeness, creativity and entrepreneurs. Thus, this combination of factors can lead to a type of entrepreneurial activity that is highly productive for society (Aparicio et al. 2016a; Baumol 1990; Minniti and Lévesque 2010). Consequently, this type of entrepreneurial activity has been associated more with the innovation and opportunity-driven than necessity entrepreneurship (Amorós and Bosma 2014; Aparicio et al. 2016a; Hessels et al. 2008; Naudé et al. 2013; Urbano and Aparicio 2016).

These enhanced social environments within regions and countries could be related to SPO using the dimensions of the ISD. As mentioned, these dimensions focus on the social norms that promote civic activism, clubs and associations, intergroup cohesion, interpersonal safety and trust, gender equality and inclusion of minorities. If we focus on the clubs and association dimensions, the ISD refers to the community ties that act as a safety net for the poor, facilitating economic and social assistance. These social ties and connections, such as those found within families and local communities, help individuals “get by.” Also this dimension is a measure of the voluntary engagement in memberships, and so it can serve as a measure of voluntary spirit. In light of this definition, it is possible to link this dimension with the social capital approach (Foa 2011). The existing literature has recognized the positive impact of social capital on innovative entrepreneurial activity (Beugelsdijk 2007; Davidsson and Honig, 2003; Kim and Kang 2014; Leyden and Link 2015; Schulz and Baumgartner 2013). According to Casson and Della Giusta (2007), the analysis of the entrepreneurship process (opportunity seeking, creation of new products, acquisition of resources and access to new or existing markets) can help in understanding the mechanism behind the promoting effect of social capital on innovative entrepreneurial activity. Entrepreneurs with access to social capital (clubs, associations, informal networks and other meetings) can also gain access to information about entrepreneurial culture and opportunities and thus take measures to exploit them in different regions (Audia et al. 2006; Bauernschuster et al. 2010; Beugelsdijk 2007; Kwon et al. 2013). Others suggest that the trust gained through social capital is key for the acquisition of the financial, material and intangible resources that entrepreneurs otherwise do not possess (Liao and Welsch 2005; Teckchandani 2014). Finally, when the entrepreneur tries to access the market, social capital is seen as a valid conduit for transforming opportunities into innovative products (Alvarez and Busenitz 2001; Anderson et al. 2007), or even to transform necessity into opportunity entrepreneurship (Urban 2011). These



examples enable the association to be made between having access to social capital (associations, clubs, informal networks, among others) and the stages and motives of the entrepreneurial process. For each one of the stages, social capital has been shown as promoting entrepreneurial activity, which at the same time encouraging necessity-driven entrepreneurs in pursuing entrepreneurial opportunities (Urban 2010, 2011). Other authors have suggested the special importance of social capital for innovation process as a key aspect (Anderson et al. 2007; McFayden et al. 2009; Sorenson 2003). Thus, the following hypotheses are proposed:

***Hypothesis 1: Voluntary spirit positively impacts innovative entrepreneurial activity.***

***Hypothesis 1a: Voluntary spirit positively impacts entrepreneurship driven by opportunity, although the effect upon the entrepreneurship driven by necessity is negative.***

While industrialization has been linked to an emphasis on economic growth at almost any price, the public of affluent societies have placed increasing emphasis on quality of life, environmental protection and self-expression (Inglehart and Baker 2000, p. 21). This cultural shift is known as postmaterialism, and it is a universal phenomenon as development takes place (Inglehart 1977, 1990; Inglehart and Welzel 2005). Inglehart (1997) found cross-cultural differences in the analysis of 43 countries in the 1990–1991 WVS. These differences involved the views of political, social and religious norms and beliefs across rich and low-income societies. Likewise, Audretsch et al. (2013) found, by analyzing regions in India, that social and religious differences had an effect on entrepreneurial decision. At the country level, Hoogendoorn et al. (2016) provided similar insights in this regard, examining attitudes toward believing and behaving as key elements to explain entrepreneurial activity. From that analysis, traditional and secular-rational orientations toward authority, and survival versus self-expression values have emerged as two dimensions illustrating the polarization across countries (Inglehart and Baker 2000). According to Inglehart (1997), the traditional vs. secular-rational values depict a continuum where the traditional side is associated with the importance of existential security, traditional family ties, strong presence of religion and hierarchy. Thus, higher secular-rational values mean that societies tend to accept easily issues such as abortion, divorce and euthanasia, among others. However, in terms of development and social progress, the survival vs. self-expression dimension, related to trust, tolerance, subjective well-being, political activism, and self-expression, emerges in postindustrial societies with high levels of security (Aparicio et al. 2016b). Societies that emphasize survival values show relatively low levels of subjective well-being, report relatively poor health, are low on interpersonal trust, are relatively intolerant of out-groups, are low on support

for gender equality, emphasize materialist values, have relatively high levels of faith in science and technology, are relatively low on environmental activism, and are relatively favorable to authoritarian government. Societies high on self-expression values tend to have the opposite preferences on these topics (Inglehart and Baker 2000 p. 25–28). Thus, one approach to postmaterialism is seen as self-expression values, since it could define a development path across countries (Inglehart and Baker 2000; Inglehart and Welzel 2005).

The use of postmaterialism in entrepreneurship research has been limited (Hechavarría et al. 2016; Morales and Holtschlag 2013; Uhlaner and Thurik 2007). In their seminal contribution, Uhlaner and Thurik (2007, p. 168) suggested that material gains are central or crucial to entrepreneurial activity, and since those gains, by definition, are of less value to postmaterialist individuals, a society that is more postmaterialist is likely to be less entrepreneurial. These authors found that postmaterialist values<sup>4</sup> negatively influenced entrepreneurial activity (nascent entrepreneurial activity and new business formation) when controlling for education, economic development and life satisfaction at the country level. However, the same authors left the door open for further research in order to clarify the interrelations between postmaterialism and the motivations behind entrepreneurial activity because they may differ across countries. The motivations that trigger entrepreneurial activity are distinguished, as mentioned above, between opportunity and necessity according to GEM. Since self-expression, creativity and the full development of the individual are reached in climates of free choice (Inglehart and Welzel 2005, p. 139), new businesses based on innovation and entrepreneurship driven by opportunity may find a better fit in societies oriented to social progress than necessity entrepreneurial activity. As a matter of fact, Scandinavian, Anglo-Saxon and Central European societies rank highly in

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<sup>4</sup> Postmaterialist values are measured by the four-item index devised by Inglehart. In this index, respondents are asked to rank from one to four the four goals to which a country should aim in 10 years: (i) maintaining order in the nation, (ii) giving the people more say in important government decisions, (iii) fighting rising prices, and (iv) protecting freedom of speech. Items (i) and (iii) correspond to materialist values, while items (ii) and (iv) are postmaterialist values. The final ranks of the goals are used to assign respondents to one of three categories. If the first two rankings are postmaterialist values, respondents will be classified as Group 3. If the first two rankings are materialist values, respondents will be classified as Group 1. If one value is materialist and one postmaterialist, they will be classified as mixed in Group 2 (Braithwaite et al. 1996). Some authors criticize the four-item index due to the reductionist character of that measurement of postmaterialism (Davis and Davenport 1999). Others question the theoretical foundations of postmaterialism in itself; in that sense, Duch and Taylor (1993) found empirical evidence that early childhood economic condition is not sufficient to explain the emergence of postmaterialist values and that education and the current economic situation, such as crisis and inflation, are important. Despite the limitations and the lack of consensus among researchers, postmaterialism is one of the predominant conceptual frameworks in social science (Beckers et al. 2012).

Inglehart's dimension, have innovative entrepreneurial activity and present a prevalence of entrepreneurship driven by opportunity, rather than entrepreneurship driven by necessity.<sup>5</sup> According to Hechavarria and Reynolds (2009), self-expression values positively impact opportunity entrepreneurship, since the well-being status allows entrepreneurs to more easily perceive the opportunities that could exist in their environment. At the same time, these authors found that self-expression was negatively correlated with necessity entrepreneurship, showing in a cross-country comparison that the higher development of this characteristic may be associated with lower levels of individuals seeking short-term solutions through entrepreneurship. Consequently, in response to the call made by Uhlaner and Thurik (2007) for more in-depth research, the following hypotheses was proposed:

***Hypothesis 2: Higher self-expression values positively impact innovative entrepreneurial activity.***

***Hypothesis 2a: Higher self-expression values positively impact entrepreneurship driven by opportunity. However, the impact upon the entrepreneurship driven by necessity is negative.***

Hofstede (1980, 2005)<sup>6</sup> and Hofstede et al. (1997) devised a set of dimensions through the study of a multinational firm's cultural setting. Although with mixed results (Bruton et al. 2010; Hayton et al. 2002; Salimath and Cullen 2010; Spencer and Gomez 2004), cultural dimensions have been extensively applied to the study of entrepreneurial activity at regional and country levels (Baum et al. 1993; Beugelsdijk 2007; Bosma 2009; Davidsson 1995; Davidsson and Wiklund 1997; Feldman 2014; Hofstede et al. 2004; Mitchell et al. 2000; Shane 1992, 1993; Vinogradov and Kolvereid 2007, among others). Extant research tends to depict the entrepreneur profile as individualistic, featuring a high power distance, masculinity and low uncertainty avoidance (Busenitz and Lau 1996; Hayton et al. 2002;

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<sup>5</sup> According to Global Entrepreneurial activity Monitor (GEM), Scandinavian countries are reported systematically among the top rankers of entrepreneurial activity driven by opportunity, which is defined as the percentage of those involved in TEA who (i) claim to be driven by opportunity as opposed to finding no other option for work; and (ii) indicate that the main driver for being involved in this opportunity is being independent or increasing their income, rather than just maintaining their income. In 2012, the percentages were Finland 66%, Norway 61% and Sweden 58%.

<sup>6</sup> After conducting an intra-firm worldwide research in IBM, Hofstede defined initially four cultural dimensions observed among respondents: Power Distance, Individualism vs. Collectivism, Masculinity vs. Femininity, Uncertainty Avoidance. Later on, in 1991, the addition of a fifth dimension, Long-Term Orientation, was based on a study about the presence of Chinese values among students from 23 countries (Minkov and Hofstede 2012).

McGrath et al. 1992a, 1992b). Among all the cultural dimensions, individualism and uncertainty avoidance are the two most studied by the existing research analyzing regions and countries (Rooks et al. 2016; Salimath and Cullen 2010). Empirical evidence supporting the idea that individualism favors entrepreneurial activity and innovation has been found by some researchers (McGrath et al. 1992a; Morris et al. 1993; Mueller and Thomas 2001; Rooks et al. 2016; Shane 1993). However, challenging this assumption, other authors suggest that a lesser degree of individualism, as well as different sorts of collectivisms (patriotism and nationalism) are positively related to innovation and entrepreneurial activity (Aparicio et al. 2016b; Baum et al. 1993; Hunt and Levie 2002; Taylor and Wilson 2012; Tiessen 1997). In fact, Pinillos and Reyes (2011) found evidence that the level of economic development moderated the influence of individualism on entrepreneurial activity. Aligned with the traditional depiction of the entrepreneur, other authors suggest that the entrepreneur's cultural profile is low in uncertainty avoidance (McGrath et al. 1992a; Shane 1993, 1995). That pattern was confirmed by Urbano and Alvarez (2014), who found that fear of failure negatively impacted the likelihood of becoming an entrepreneur. In contrast, Wennekers et al. (2007) found a negative impact of risk tolerance on the rate of ownership of OECD countries. While the analyzed research showed that individualism and uncertainty avoidance have been widely analyzed and linked to the entrepreneur's profile, the dimensions of power distance and masculinity vs. femininity remain less well explored.

Focusing only on power distance, and drawing from Hofstede (1980) and Hofstede et al. (1997), this dimension expresses the degree to which power is distributed unequally among societies. People living in societies with high power distance are characterized by rules of hierarchy. In societies with low power distance, people have more to say in the decision-making processes and are encouraged to demand a more equal distribution of power. In terms of its definition, SPO can be conceptualized by low power distance, since people living in such environments can be encouraged to be socially active and to participate in the decision-making process (through a more even power distribution and fewer hierarchical rules). Lyons et al. (2012) suggested that community issues in entrepreneurship, in which all individuals in determined locations, regions and countries are participating together without hierarchies in the policy-making process, is a promising area to explore in this research field. Challenging the traditional approach to the entrepreneur's profile, Shane (1993) found that power distance must be low in order to make innovative and new projects flourish. Others, such as Thomas and Mueller (2000), contradicted the Westernized vision of the entrepreneur and found no empirical evidence of an association between cultural distance in terms of power distance in the US with variances in the level of innovativeness, which is often

considered a defining trait of the entrepreneur. Yet, the existing literature has provided us with more examples showing that low levels of power distance positively impact entrepreneurial activity and innovation (Lee and Peterson 2001; Liñán and Fernandez-Serrano 2014). Liñán et al. (2013) provided evidence about the effect of hierarchical societies on opportunity and necessity entrepreneurship. These authors found that egalitarian societies more effectively tend to be beneficial for entrepreneurs motivated by opportunities, while hierarchical societies boost the necessity of entrepreneurial activity. Semlinger (2008) found similar results by analyzing how less hierarchy and more regional collaboration may create an appropriate environment to foster the opportunity sought by entrepreneurs located in specific regions. If we look closely, Stephan and Uhlaner (2010) found empirical evidence supporting the hypothesis that a socially supportive culture (SSC)<sup>7</sup> characterized by low power distance encourages innovative entrepreneurial activity and entrepreneurship driven by opportunity. Thus, the following hypotheses were proposed:

***Hypothesis 3:*** *High power distance level negatively impacts innovative entrepreneurial activity.*

***Hypothesis 3a:*** *High power distance level negatively impacts entrepreneurship driven by opportunity. However, the impact upon entrepreneurship driven by necessity is positive.*

### **3 Data and methods**

As stated previously, the purpose of this paper is to analyze the effect of SPO on innovative entrepreneurial activity. To this end, we employ the following variables:

#### **3.1 Dependent variables**

The dependent variables were sourced from GEM for the year 2012. The GEM project is considered to be the most important study on entrepreneurial activity worldwide. Developed jointly by two universities, the London Business School (UK) and Babson College (USA), it enables cross-national comparisons on the level of national entrepreneurial activity, estimates the role of entrepreneurial activity in national economic growth, determines the factors that account for national differences and facilitates policies that may be effective in promoting entrepreneurial activity (Urbano and Alvarez 2014).

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<sup>7</sup> Based on the GLOBE study (House et al. 2004).

The use of the GEM dataset has grown recently. By 2012, a total of 106 articles published in Journal Citation Reports (JCR) used the information from GEM and analyzed the entrepreneurial activity through the GEM lenses (Álvarez et al. 2014; Bosma 2013). According to Álvarez et al. (2014), between 1999 and 2011, 43 articles were found conducting entrepreneurship research at the country level, while seven were found at a regional level. In addition, this dataset has enabled understanding different types of entrepreneurial motives, the factors that may influence them, and the effects they could generate on firm growth and economic development (Bosma 2013).

In this article, innovative TEA, entrepreneurship driven by opportunity (TEA OPP) and driven by necessity (TEA NEC) were used as the dependent variables in different models. Innovative TEA is an indicator of the GEM project, defined as the percentage within TEA of the adult population engaged in the process of setting up a new business or owning an established young business (up to 42 months) considering a new market (few/no business offers the same product). TEA OPP is defined as the percentage of those involved in TEA who claim to be driven by improvement motives (independence or increasing their income). TEA NEC is defined as the percentage of those involved in TEA who are entrepreneurs because they had no other option for work. All these variables, as well as the independent and control variables were provided for country *i*.

### 3.2 Independent variables

Three different dimensions of SPO were used in this research: voluntary spirit (VOL) measured through the clubs and association dimension from the ISD; Inglehart's postmaterialism dimension of the survival/self-expression dimensions from the WVS; and the Hofstede's cultural dimension of power distance (PDI) from the Hofstede Centre.

By focusing on informal institutions, the ISD has attempted to help researchers overcome the limitations when estimating the effects of social development for a large range of countries (Foa and Tanner 2012). These indices correspond to a research initiative related to the ISS of the Erasmus University of Rotterdam. Using the method of matching percentiles, they synthesized more than 200 indicators from 25<sup>8</sup> sources known worldwide into a usable set of dimensions. As mentioned,

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<sup>8</sup> Afrobarometer, Asian Barometer, Cingranelli-Richards (CIRI) Human Rights Data Project, Civicus, Cross-National Time-Series Data Archive, Demographic and Health Surveys, Economist Intelligence Unit, European Social Survey, Fund For Peace, John Hopkins Comparative Nonprofit Sector Project, International Country Risk Guide, International Crime Victims Survey, International Labour Organisation, International Social Survey,

the VOL is a continuous variable measured through the clubs and association dimension, which measures the membership in voluntary associations, ranging from 0 (low level) and 1 (high level).

Postmaterialism provides a set of measures that reflect the different views of respondents regarding questions about political, religious, marital, community life and self-expression issues (Inglehart and Baker 2000). Thus, from the work of Inglehart (1997) two dimensions emerged, the traditional vs. secular-rational values and the survival vs. self-expression values, for which each society can be located on a map based on the two dimensions (Inglehart 1997, p. 81–98). The traditional side of the traditional vs. secular-rational values emphasizes the importance of religion, national pride and authority, while the secular-rational side expresses the opposite. The survival side of the survival vs. self-expression values represents a priority of economic and physical security over self-expression and quality-of-life. The self-expression side expresses the opposite. As mentioned above, survival vs. self-expression could define a socio-economic development path across countries, while postmaterialism is associated with a rise of self-expression values (Inglehart and Welzel 2005). This is a continuous variable originally ranging from -2.5 to 2.5. However, in order to obtain a straightforward interpretation, we changed the scale from 0 (low self-expression values) to 5 (high self-expression values).

According to Hofstede (2009), the cultural dimensions approach only allows for country comparison (which is the case for this research), as it is not theoretically and technically consistent to use it as a tool for predicting individual behavior. Among the cultural dimensions, power distance was used in this research. Power distance is a continuous variable expressing how power is distributed among the members of a society and their expectation that power is distributed unequally. Societies ranking low in power distance (i.e. close to 0) are characterized by people's empowerment and low hierarchy. On the other hand, a rank close to 100 implies societies with power distance and concentrated hierarchies.

### 3.3 Control variables

Although the main focus was on developing an institutional model, other factors may also influence entrepreneurial activity. In some cases, introducing country fixed-effects may help in this regard, although we were not able to do this, since the inclusion of a dummy representing each country would reduce the model's degrees of freedom. Instead, recent research has shown the importance of considering

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International Telecommunication Union, Latinobarometer, London School of Economics Annual Civil Society Yearbook, Minorities at Risk, OECD Factbook, UNESCO, World Development Indicators, World Values Survey.

socioeconomic factors in explaining the differences in innovative entrepreneurial activity across countries (Acs et al. 2012; Arenius and Minniti 2005; Carree et al. 2002; Hartog et al. 2010; Verheul et al. 2002, 2006; Wennekers et al. 2005). The value systems of rich countries differ systematically from those of poor countries (Inglehart and Baker 2000, p. 29). Thus, the impact of SPO on innovative entrepreneurial activity must be analyzed within the framework of the level of development. For this purpose, the level of development was included as a control variable to ensure that the results were not unjustifiably influenced by such factors. In each model, socioeconomic factors related to economic and noneconomic development (education, health and income per capita) were controlled by the HDI of the UNDP. Also, the percentage of female population, economic outcome (GDP per capita in power purchase parity terms), health expenditure, age structure of population and unemployment rate were used as controls in each model. In Table 1, the variables used in this research are described.

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 Insert Table 1 about here  
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### 3.4 Data and the models

The effects of SPO on entrepreneurial activity were analyzed at the country level, using Ordinary Least Squares (OLS) in cross-sectional regression for 2012. For this purpose, we estimated the following model:

$$TEA_i = \alpha + \beta_j SPO_{j,i} + \sum_k \delta_k CV_{k,i} + \mu_i$$

where  $TEA_i$  is the vector of the respective dependent variables (innovative, opportunity and necessity TEA);  $\beta_j$  represents the estimation results for each  $j$  SPO measure ( $VOL_i$ ,  $SSV_i$ , and  $PDI_i$ ); and  $\delta_k$  is the parameter estimated for each  $k$  control variable ( $CV_{k,i}$ ), that represents the socioeconomic factors related to the level of development (HDI), economic outcome (GDP ppp), population (percentage of female population), health expenditures, age structure of population and unemployment rate; and  $\mu_i$  is the error term. Natural logarithms were used in order to obtain a direct interpretation of the coefficients. According to Wooldridge (2012, p. 44), it implies that the percentage of change in the independent variable causes a percentage change in the dependent variable expressed in the respective coefficient.

In this regard, Models 1, 2 and 3 considered the first SPO dimension, namely membership and voluntary local association (VOL) and its effect on innovative,



opportunity and necessity TEA, respectively. Models 4, 5 and 6 took into account the SPO dimension related to survival vs. self-expression values (SSV) and the measures of entrepreneurial activity (innovative, as well as opportunity and necessity entrepreneurship). Models 7, 8 and 9 assessed the Hofstede dimension (PDI) on innovative, opportunity and necessity TEA, respectively. All models included the socioeconomic development control variables already defined. See Annex 4 for a list of countries.

### 3.5 Tests for robustness

To assess for the robustness of the models, two tests were carried out. First, all multiple regression models were calculated for prediction of innovative, opportunity and necessity entrepreneurship for each of 48 and 56 (Model 1, and Models 2 and 3, respectively), 29 and 33 (Model 4, and Models 5 and 6, respectively) and 41 and 51 (Model 7, and Models 8 and 9, respectively) subsamples, omitting one of the countries each time as a test for outlier effects.

In a second test of robustness, a different set of models was estimated substituting the dependent variable. In this case, all SPO variables were used to explain the variability of innovative entrepreneurship based on new product development. Similar to Models 1, 4 and 7, the estimation results (magnitude and sign) remained relatively stable across models (see Annex 5).

These findings showed that our results were stable to various changes applied to the original specification. Therefore, we are confident that the different measures of SPO we studied had a robust effect on innovative, opportunity and necessity TEA.

## 4 Results

Table 2 provides the means, standard deviations and pairwise correlation coefficients for all the variables. As Table 2 shows, there was a relatively middle average level of innovative entrepreneurship across countries (44.90%), and the rate of opportunity entrepreneurial activity seemed to be a bit higher than innovative TEA, which had a mean equal to 47.29% in our sample; nonetheless, necessity TEA was about half of the previous entrepreneurship measures (24.96%). Regarding the independent variables related to SPO, most of the countries were characterized by a middle level of voluntary spirit (0.52 on average), self-expression values (2.83 on average), and power distance (59.77 on average). Apart

from Table 2, which also shows how scattered the countries were, Annexes 1-3 provided two insightful facts about how the independent and dependent variables were related. First, in order to avoid biased selection, Annexes show the sample was heterogeneous. And second, the countries followed a pattern according to what we expected theoretically in each SPO measure and entrepreneurial activity. On the one hand, Annexes 1 and 2 (panels b and c) may suggest that voluntary spirit and self-expression values were positively associated with innovative and opportunity TEA. However, these entrepreneurship measures vs. power distance had a negative slope (Annexes 1 and 2, panel d). Exactly the opposite occurred for necessity entrepreneurship and SPO variables (see Annex 3).

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 Insert Table 2 about here  
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Regarding the correlation matrix, all the results were in accordance with the theory presented above, which also provided the opportunity to explore in depth the hypotheses stated previously. As seen in Table 2, the correlation between innovative and opportunity TEA and voluntary spirit was very high, since the entrepreneurial activities increased as this SPO measure grew (0.27,  $p < 0.1$ ; and 0.14,  $p > 0.1$ , respectively). The same applied to the levels of self-expression values vs. innovative (0.39,  $p < 0.05$ ) and vs. opportunity entrepreneurship (0.34,  $p < 0.05$ ). Concerning power distance, Table 2 showed a negative correlation between innovative and opportunity TEA and this SPO variable (0.28,  $p < 0.1$ ; and 0.29,  $p < 0.05$ , respectively). The opposite happened between necessity entrepreneurship and voluntary spirit (-0.16,  $p > 0.1$ ), self-expression values (-0.36,  $p < 0.01$ ), and power distance (0.41,  $p < 0.01$ ). Therefore, preliminary support was found for the hypotheses.

In Table 3, the results of the OLS regression with robust variance estimates are shown. In the final rows, we also reported the number of countries available for each model, the coefficient of determination ( $R^2$ ), the Root MSE, the variance inflation factors (VIF), the criteria for heteroscedasticity (White's test), the Akaike criterion (AIC), and the Schwarz criterion (BIC). The Root MSE showed that each estimated model had little difference from the real data. In terms of multicollinearity test, all values were substantially below 10, which is the maximum value commonly accepted. The White's test (White 1980) showed, for all models, that the null hypothesis about zero constant variance in the residuals was not

rejected for Models 1, 2, 3, 5, 6 and 7. Nevertheless, we estimated all models with robust standard errors to avoid heteroscedasticity issues.

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Insert Table 3 about here  
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All the models had high explanatory power, explaining, in the best case, 70.0% of the variance in TEA NEC ratio (for Model 6), 56.7% of the variance in opportunity entrepreneurship (Model 5), and 42.1% of the variance in innovative entrepreneurship (for Model 1). The lowest explanatory power was found for Model 4, where 24.4% of the variance of innovative entrepreneurship and 36.5% (Model 2) of the variance in entrepreneurship driven by opportunity were explained when self-expression values (SSV) and voluntary spirit (VOL) were used as independent variables, respectively.

The results from Models 1 and 3 showed that voluntary spirit (VOL) had significant influence on innovative and necessity entrepreneurship. In this regard, VOL had a positive and significant influence (Model 1: 0.600,  $p < 0.01$ , and Model 3: 0.496,  $p < 0.1$ ) on innovative and necessity TEA, respectively. Model 1 explained 42.1% of the variance in innovative entrepreneurship, Model 2 explained 36.5% of the variance in TEA OPP, while Model 3 explained 61.9% of the variance in TEA NEC, indicating that, in terms of  $R^2$ , the three models had good fit. The results from Models 4, 5 and 6 showed that survival/self-expression values (SSV) had a positive impact on both innovative and opportunity entrepreneurial activity measures, but a negative and statistically significant influence only on TEA NEC (-0.564,  $p < 0.01$ ). Model 4 also explained 24.4% of the variation in innovative entrepreneurship, Model 5 explained 56.8% of the variance in opportunity entrepreneurship and Model 6 explained 69.9% of the variance in TEA NEC ratio, indicating that, in terms of  $R^2$ , these also had good fit. The results from Models 7, 8 and 9 showed that the dimension of power distance (PDI), though with the expected sign, was not statistically significant either for innovative entrepreneurship or TEA OPP. However, for TEA NEC, it exhibited a positive and significant impact (0.264,  $p < 0.05$ ). Models 7, 8 and 9 also showed high explanatory power: when innovative entrepreneurship was used as a dependent variable, the explained variance was 25.6%; when entrepreneurship driven by opportunity was used as a dependent variable, the explained variance was 47.8%; meanwhile, when TEA NEC was used as a dependent variable for the PDI, the explanatory power was 63%.

Regarding hypothesis testing, in Model 1 a positive influence of VOL on innovative entrepreneurship (hypothesis 1) was obtained, while in Model 2 and Model 3, a positive influence of VOL on the TEA OPP and a negative influence of VOL on TEA NEC (hypothesis 1a) were predicted. According to the results, hypothesis 1 could not be rejected, but hypothesis 1a was partially supported. Here, we could say that, for each country in our sample, if the VOL increased by 1%, the innovative TEA increased by 0.600%, while TEA NEC decreased by 0.496%, *ceteris paribus*. Consistent with the reviewed literature, VOL was identified as a key factor for the innovative entrepreneurship process (Audia et al. 2006; Bauernschuster et al. 2010; Kwon et al. 2013). As a consequence, innovation, resource mobilization and market access in regions and countries were facilitated through an enhanced associative inclination, especially in sectors of activity characterized by an innovative component (Alvarez and Busenitz 2001; Anderson et al. 2007; Feldman 2014; Sorenson 2003). Beugelsdijk (2007) suggested that collaborations among individuals are a required characteristic to enhance the entrepreneurial activity in regions. Similarly, Bosma (2009) found that those variables related to informal institutions are highly relevant to obtaining a better understanding of the entrepreneurial process in each region, which in turn could define their development path. In this regard, Liñán and Fernandez-Serrano (2014) found that societies with cultural values related to collaboration and connections were significantly associated with lower levels of necessity entrepreneurship. According to these authors, by encouraging the entrepreneurial activity pursuing different motives to necessity, it was possible to obtain greater economic development.

In terms of hypothesis 2, a positive impact of SSV on innovative entrepreneurship, was predicted and hypothesis 2a suggested a positive impact on TEA OPP and a negative impact on TEA NEC. The results showed that SSV positively impacted entrepreneurial activity based on innovation, as predicted, although, no significance was found for the SSV dimension. Therefore, hypothesis 2 was not entirely supported. This result could be due to the material characteristics and motivations can be a powerful driver for new businesses based on innovation (McGrath et al. 1992a; Uhlaner and Thurik 2007; Thomas and Mueller 2000). According to Inglehart (1997), a shift from traditional and materialistic values to postmaterialist values requires a persistent increase in economic development.

To shed some light on this, it becomes indispensable to examine the relationship involving entrepreneurial activity and the level of development (Carree et al. 2002; Wennekers et al. 2005). As Annexes 1 and 2 may suggest (panel a), the fact that innovative entrepreneurship did not increase with the level of development to a point where entrepreneurship driven by opportunity increased, highlights also the different motivations (opportunity or necessity) for engaging in entrepreneurial

activity (Hessels et al. 2008; Koellinger 2008; Liñán et al. 2013). Nonetheless, hypothesis 2a, which on the one hand predicted a positive impact of SSV on TEA OPP, and a negative impact on TEA NEC, on the other hand, was also partially supported. Considering that the SSV dimension is characterized by a preference for quality of life, life satisfaction, happiness, environmental protection, gender equality and participation in public life and decision making (Inglehart 1997), our lack of statistical significance could imply that some regional and national regulations are effectively needed to lead individuals toward the constant search for innovation discoveries and the identification of worth opportunities (Aparicio et al. 2016a; Fuentelsaz et al. 2015). According to Shane (2009), an increased number of entrepreneurs as the only purpose of a determined policy could hinder long-term entrepreneurial development, since it could generate entrepreneurship with low added value, mostly associated with necessity issues (Reynolds et al. 2005).

Feldman (2014) discussed the importance of the socioeconomic well-being associated with the capacity to innovate in places and regions, which compensates in favor of innovative entrepreneurs, rather than entrepreneurship driven by other reasons (i.e. necessity). In this sense, Hechavarria and Reynolds (2009) also agreed with the fact that if societies have higher levels of cultural values such as self-expression, it is possible that the amount of necessity entrepreneurship could be significantly reduced, though they suggest this type of entrepreneurial activity should not be eradicated. Specifically, in our case, we found that if the SSV increased by 1%, the necessity TEA decreased by 0.564%, *ceteris paribus*. These results were consistent with Naudé et al. (2013), who found empirical evidence for the impact of superior levels of subjective well-being on the TEA NEC, which was negatively affected.

For hypotheses 3 and 3a, Hofstede's cultural dimension of power distance (PDI) was used to predict the negative impact on innovative entrepreneurship, as well as TEA OPP and TEA NEC, respectively. The results of PDI showed no significant impact on new businesses based on innovation, or for entrepreneurship driven by opportunity, while for TEA NEC the result was in accordance with the theory. In this respect, hypothesis 3 was rejected, and the hypothesis 3a was not rejected partially. Notwithstanding this, the signs of the coefficient for PDI were negative assessing these two variables, as expected. In this line, empirical evidence has suggested that low PDI encourages entrepreneurial activity (Lee and Peterson 2001). However, similar to the previous case, Liñán et al. (2013) pointed out that some cultural values could mediate the development level with the entrepreneurial activity associated with opportunity seeking and innovation process, but some others do not. In this respect, some cultural variables such as those related to the hierarchy may be embedded to some extent with some political issues that are preventing the

movement of societies toward the achievement of egalitarian processes in different social and economic spheres (Liñán and Fernandez-Serrano 2014). According to Anokhin and Schulze (2009) and Aparicio et al. (2016a), among others, if, for instance, control of corruption was not effective, the effort to encourage an entrepreneurial culture in regions (Beugelsdijk 2007; Feldman 2001) or countries would not generate significant results in increasing the entrepreneurial activity driven by innovation and opportunity.

Regarding the impact of PDI on the TEA NEC, the results showed a significant and positive influence. In this respect, if the PDI increased by 1%, necessity TEA increased by 0.264%, *ceteris paribus*. This result was in accordance with authors such as Liñán et al. (2013), who found that societies with less egalitarianism could promote harmful concentrations of power in small groups pursuing their own interests. According to Reynolds et al. (2005), necessity entrepreneurship may be plentiful in regions and countries where there are a lack of institutions not reducing the coordination problems across individuals. In this respect, power concentration implies information asymmetries in favor of small interest groups, which cause obstacles in the market performance, and, thus, social problems such as unemployment and poverty. As a result, unofficial economies and necessity entrepreneurship arise as structural responses to overcome the social problems in these regions and countries (Acs and Virgill 2010; Bruton et al. 2013). As Acs et al. (2008b) underlined, scarce institutional capacity is more seen in most of the countries classified in the factor-driven stage, and some economies in the efficiency-driven group, which contain an entrepreneurial activity not creating social value, but commercial value for short-term periods (Acs et al. 2013).

Finally, one control variable caught our attention: the HDI, which revealed some interesting results. As mentioned before, the HDI aimed to control for the level of development effects (income per capita, education and health). Consistent with the existing literature (Carree et al. 2002, 2007; Gries and Naudé 2010; Hessels et al. 2008; Wennekers et al. 2005, among others), these results confirmed a relationship between development and entrepreneurial activity. According to this perspective, as societies become more affluent, the mechanism behind this relationship propels the entrepreneurship driven by innovation and opportunity more than the entrepreneurship driven by necessity.

## **5 Policy discussion**

The previous results showed a positive effect of VOL on innovative TEA (statistically significant) and opportunity TEA (not statistically significant), and a negative effect

on necessity TEA (statistically significant) in a heterogeneous sample (high- middle- and low-income countries). Similarly, SSV had a positive effect on entrepreneurship driven by innovation (not statistically significant), driven by opportunity (not statistically significant) and a negative effect on necessity entrepreneurship (statistically significant). By contrast, PDI was negatively related to both innovative and opportunity entrepreneurship (not statistically significant), and positive and statistically significantly associated with TEA NEC. Hence, each country had different social progress characteristics encouraging innovative entrepreneurship, and diminishing the activity with lower added value. In terms of public policy, our results pointed out the importance of identifying those social characteristics aimed toward common progress, in which innovative entrepreneurship could serve as a conduit to the achievement of socioeconomic development. In addition, our results highlighted, as in the extant literature, the importance of focusing, designing and evaluating appropriate strategies to encourage entrepreneurial activity, otherwise uncertainty in the markets, coordination problems and interest groups could prevent any effort to obtain significant results in terms of the entrepreneurial activity needed for development, as Shane (2009) suggested.

On the above aspect, the public policy design around the entrepreneurial activity should take into account the entrepreneurship dynamics in each region and country (Shane 2009). Drawing on this, policies fostering any type of entrepreneurship could be harmful in the long-term, since some entrepreneurial activity does not contribute to social value creation (Acs et al. 2013). Although Urbano and Aparicio (2016) cannot conclude anything in terms of necessity entrepreneurship, they found that the entrepreneurial activity related to innovation and opportunity seeking had a longer impact on economic growth. Similarly, Acs et al. (2012), Aparicio et al. (2016a), Minniti and Lévesque (2010) and Wong et al. (2005), among others, found that the entrepreneurial activity associated with innovation was positively related to economic growth. In this regard, our findings could contribute to the actual debate about those factors encouraging innovative entrepreneurship types. As Audretsch et al. (2015a) suggested in a recent conceptual effort about entrepreneurship, it is necessary to understand those factors that are dynamic and, in some cases, changing slowly over time.

Congruent with North (1990, 2005) and Williamson (2000), informal institutions, and hence SPO, tend to change more slowly than formal institutions. Here, our results could be useful when discussing policy implications, in which social values contribute to innovative entrepreneurial activity. According to De Clercq et al. (2010) and Holland and Shepherd (2013), personal values and environmental characteristics such as collaborations and community efforts should be considered by policy makers in order to foster entrepreneurial persistence. In line with this idea, short- and long-

term public strategies allow for the achievement of innovative entrepreneurship, capable of creating social value and development.

In this respect, the SPO assessed here could be useful to understand four possible dynamics of innovative entrepreneurship types. Specifically, voluntary spirit, mainly encouraged by social capital, explained (i) increasing innovative entrepreneurship, (ii) opportunity entrepreneurship, or (iii) decreasing necessity entrepreneurship, or (iv) increasing opportunity entrepreneurship and decreasing necessity entrepreneurship. According to Bauernsschuster et al. (2010), Estrin et al. (2013), Kim and Kang (2014) and Minniti (2004), among others, on the one hand, social capital and group activities increased the entrepreneurial alertness among individuals. Here, not only is trust acquired, but also moral support in terms of friendship and family is obtained from the network. Therefore, club associations in different areas and without entry restrictions must be encouraged by governments and society. On the other hand, Ács et al. (2014) also discussed some aspects at the macro level concerning the creation of national systems of entrepreneurship as networks between government, financial system, incumbent firms, entrepreneurs and society. According to these authors, these sorts of systems could guarantee the articulation between the different actors, useful to generate incentives for entrepreneurs, who also could be close to the innovation systems, and therefore, create new businesses based on innovative ideas.

Regarding postmaterialism values, the evidence suggested that in those economies where the autonomy capacity is higher, the socioeconomic development stage tends to be high (Inglehart and Baker, 2000). Inglehart and Baker's (2000) findings were associated with the development segmentation by World Economic Forum (WEF). In this sense, those innovation-driven economies tended to have higher self-expression values than those efficiency- and factor-driven economies. In line with North (2005), the socioeconomic performance was accomplished depending on the intentionality of all individuals toward progress. In this sense, universities play an important role in providing knowledge and managerial skills as links with incumbent firms to acquire experience, as well as serving as an environment for the development of academic spin-offs (Guerrero et al. 2015). According to our results, by allowing and encouraging the academic, innovative and entrepreneurial projects in universities, it may be possible to exploit the creativity and autonomy for business creation based on opportunity recognition.

Finally, hierarchical groups generating coordination problems and gender inequality may be some of the consequences of power distance. Regarding hierarchical groups, Anokhin and Schulze (2009), Liñán and Fernandez-Serrano (2014) and Aparicio et al. (2016b) suggested that control of corruption was highly relevant for the



entrepreneurial process of discovery, evaluation and exploitation of opportunities. To achieve this, Jetter et al. (2015) suggested a deep economic process involving social advances (e.g. education, health, inclusion, etc.) and industrial transformation, among others, in order to boost economies to scale up the economic development stage, since they found that advanced economies tended to be more democratic and therefore less corrupt. In this sense, fiscal mechanisms to redistribute the wealth and generate social inclusion are crucial. It implies well-defined regulatory actors, as well as the attention and regular participation of the whole society in the design of public budget and the use of public funds. Regarding gender inequality, literature on female entrepreneurship suggests that the gap between women and men is harmful for social and economic development (Aidis et al. 2007; Baughn et al. 2006; Terjesen and Amorós 2010, among others). In this regard, Kantor (2005) highlighted that the participation of women entrepreneurs should also be considered in terms of its importance to the home, since it allows for their own development and knowledge transfer to their offspring. To incentivize this process, participation and status improvement of women in the home, job places and society in general, should be achieved. Additionally, Kantor (2005) suggested empowering women in terms of financial resource access, childcare infrastructure and management skills. In this case, policies encouraging female participation in entrepreneurial activity and labor market should take into account characteristics such as marital status, presence of children, age, education level and business type (Lee et al. 2011).

## **6 Conclusions**

The purpose of this research was to analyze through the institutional lenses the effect of SPO on innovative entrepreneurship from an international perspective. Through an OLS method, the study showed that SPO positively influenced the innovative entrepreneurship and negatively the necessity-driven entrepreneurial activity. Specifically, these findings suggest that societies oriented toward high voluntary spirit (VOL), high self-expression values (SSV) and power distance (low level) exhibited a greater innovative entrepreneurship (only in case of VOL) and a lower TEA NEC.

This research contributes to the existing literature in the following ways. By introducing the concept of SPO, it contributes to the application of an institutional approach to the study of the factors that promote or inhibit innovative entrepreneurial activity. As a result, SPO can be a factor to take into account when examining TEA NEC. Second, the ISD, which is an unexplored database for entrepreneurial activity research to date, was used. This database can help with the

permanent challenge of finding proxies for informal institutions (Bruton et al. 2010; Veciana and Urbano 2008).

Also, this research can offer insights and implications for practitioners and policymakers. By understanding and being aware of the factors that promote new firm creation, which is seen as a valid conduit for economic development (Schumpeter 1911), they could direct actions accordingly. Thus, it may be suggested that reinforcing SPO produces a positive impact on the prevalence of entrepreneurship driven by innovation over entrepreneurship driven necessity, which, in turn, can affect development (Audretsch et al. 2008; Baumol 1990; Noseleit 2013). Also, these insights may be useful for the design of programs addressed to promote entrepreneurial activity, and especially those driven by innovation. For instance, governments can exploit the potential of SPO related to the voluntary spirit (VOL) by developing incubator centers (Bøllingtoft and Ulhøi 2005).

Our research had some limitations, such as small sample size (56 countries at its largest) and its particular period of time (2012). Apart from practical reasons, such as the scarcity and the regularity of year-to-year information for all the explanatory variables, the reason the cross-sectional analysis was used in this research is that some authors suggest that innovative entrepreneurial activity may be a structural characteristic of each country's economy (Acs et al. 2004; van Stel et al. 2005). In this vein, others suggested that cultural values are stable over time (Hofstede 2005; Inglehart and Welzel 2005). However, the observed relationship between SPO and innovative entrepreneurial activity may be altered if the period of time and the composition of the sample were different (i.e. considering regions or cities). Other limitations included the theoretical validity of the construct of SPO and the lack of explicit past research. Given these limitations, future research should explore the relationship between SPO and innovative entrepreneurial activity in other periods of time and, if possible, through longitudinal analysis to test the construct validity of SPO across time. Also, in further research, other dimensions of the ISD and Hofstede's cultural model, such as civic activism, inclusion of minorities or individualism vs. collectivism and uncertainty avoidance can be considered in order to broaden the understanding of the construct of SPO. This construct may be addressed through factor analysis in order to capture the essence of SPO considering the set of different dimensions listed above. Additionally, regional analysis (Audretsch et al. 2015b) and the importance of community (Jennings et al. 2013) on the entrepreneurial process are promising non-explored areas in entrepreneurship research. In this regard, it may be very important to provide theoretical insights and empirical facts at regional and local levels in order to capture the cultural characteristics encouraging/discouraging entrepreneurs affecting long-term development.

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## References

- Acs ZJ, Arenius P, Hay M, Minniti M (2004) Global Entrepreneurship Monitor. Executive Report. London Business School, Babson.
- Ács ZJ, Autio E, Szerb L (2014) National systems of entrepreneurship: Measurement issues and policy implications. *Res Policy* 43:476-494.
- Acs ZJ, Boardman MC, McNeely CL (2013) The social value of productive entrepreneurship. *Small Bus Econ* 40:785-796.
- Acs ZJ, Szerb L (2007) Entrepreneurship, economic growth and public policy. *Small Bus Econ* 28:109-122.
- Acs Z, Desai S, Klapper LF (2008a) What does “entrepreneurship” data really show? *Small Bus Econ* 31:265–281.
- Acs ZJ, Desai S, Hessels J (2008b) Entrepreneurship, economic development and institutions. *Small Bus Econ* 31:219-234.
- Acs ZJ, Braunerhjelm P, Audretsch DB, Carlsson B (2009) The knowledge spillover theory of entrepreneurship. *Small Bus Econ* 32:15-30.
- Acs ZJ, Audretsch DB, Braunerhjelm P, Carlsson B (2012) Growth and entrepreneurship. *Small Bus Econ* 39:289–300.
- Acs ZJ, Boardman MC, McNeely CL (2013) The social value of productive entrepreneurship. *Small Bus Econ* 40:785-796.
- Acs Z, Virgill N (2010) Entrepreneurship in developing countries. *Found Trends Entrep* 6:1-68.
- Aidis R, Welter F, Smallbone D, Isakova N (2007) Female entrepreneurship in transition economies: the case of Lithuania and Ukraine. *Fem Econ* 13:157–183.
- Alkire S, Santos ME (2011) Acute multidimensional poverty: A new index for developing countries. Proceedings of the German Development Economics Conference, Berlin 2011. Conference paper.
- Alvarez SA, Busenitz L. W (2001) The entrepreneurship of resource-based theory. *J Manage* 27:755-775.
- Alvarez C, Urbano D (2011) Environmental factors and entrepreneurial activity in Latin America. *Acad-Rev Latinoam Ad* 48:31-45.

- Álvarez C, Urbano D, Amorós JE (2014) GEM research: achievements and challenges. *Small Bus Econ* 42:445-465.
- Amorós JE, Bosma N (2014) Global Entrepreneurship Monitor 2013 Global Report: fifteen years of assessing entrepreneurial activity across the globe. Global Entrepreneurship Monitor. <http://www.gemconsortium.org/docs/download/3106>. Accessed 26 September 2014.
- Anderson A, Park J, Jack S (2007) Entrepreneurial Social Capital Conceptualizing Social Capital in New High-tech Firms. *Int Small Bus J* 25:245-272.
- Anokhin S, Schulze WS (2009) Entrepreneurship, innovation, and corruption. *J Bus Venturing* 24:465-476.
- Aparicio S, Urbano D, Audretsch D (2016a) Institutional factors, opportunity entrepreneurship and economic growth: Panel data evidence. *Technol Forecast Soc* 102:45-61.
- Aparicio S, Urbano D, Gómez D. (2016b) The role of innovative entrepreneurship within Colombian business cycle scenarios: A system dynamics approach. *Futures*. In press, doi: 10.1016/j.futures.2016.02.004.
- Arenius P, Minniti M (2005) Perceptual variables and nascent entrepreneurship. *Small Bus Econ* 24:233-247.
- Audia PG, Freeman JH, Reynolds PD (2006) Organizational foundings in community context: Instruments manufacturers and their interrelationship with other organizations. *Admin Sci Quart* 51:381-419.
- Audretsch D (2012) Entrepreneurship research. *Manage Decis* 50:755-764.
- Audretsch DB, Bönte W, Keilbach M (2008). Entrepreneurship capital and its impact on knowledge diffusion and economic performance. *J Bus Venturing* 23:687-698.
- Audretsch DB, Bönte W, Tamvada JP (2013) Religion, social class, and entrepreneurial choice. *J Bus Venturing* 28:774-789.
- Audretsch DB, Keilbach M. (2008) Resolving the knowledge paradox: Knowledge-spillover entrepreneurship and economic growth. *Res Policy* 37:1697-1705.
- Audretsch DB, Belitski M, Desai S (2015b) Entrepreneurship and economic development in cities. *The Annals of Regional Science*, 55(1), 33-60.
- Audretsch DB, Kuratko DF, Link AN (2015) Making sense of the elusive paradigm of entrepreneurship. *Small Bus Econ*. doi: 10.1007/s11187-015-9663-z.
- Avlonitis GJ, Salavou HE (2007) Entrepreneurial orientation of SMEs, product innovativeness, and performance. *J Bus Res* 60:566-575.
- Bauernschuster S, Falck O, Heblich S (2010) Social capital access and entrepreneurship. *J Econ Behav Organ* 76:821-833.
- Baughn CC, Chua BL, Neupert KE (2006) The Normative Context for Women's Participation in Entrepreneurship: A Multicountry Study. *Entrep Theory Pract* 30:687-708.

- Baum JR, Olman JD, Erez M, Schnell ER, Smith KG, Sims HP, Smith KA (1993) Nationality and work role interactions: A cultural contrast of Israeli and US entrepreneurs' versus managers' needs. *J Bus Venturing* 8:499-512.
- Baumol WJ (1990) Entrepreneurship: Productive, unproductive, and destructive. *J Bus Venturing* 11:3-22.
- Beckers T, Siegers P, Kuntz A (2012) Congruence and performance of value concepts in social research. *Surv Res Methods* 6:13-24.
- Bergmann H, Sternberg R (2007) The changing face of entrepreneurship in Germany. *Small Bus Econ* 28:205-221.
- Beugelsdijk S (2007) Entrepreneurial culture, regional innovativeness and economic growth. *J Evol Econ* 17:187-210.
- Binder M, Coad A (2013) Life satisfaction and self-employment: a matching approach. *Small Bus Econ* 40:1009-1033.
- Blanchflower DG (2004) Self-employment: More may not be better. National Bureau of Economic Research, Working paper w10286. <http://www.nber.org/papers/w10286>. Accessed 1 October 2014.
- Block J, Koellinger P (2009) I can't get no satisfaction-Necessity entrepreneurship and procedural utility. *Kyklos* 62:191-209.
- Block JH, Kohn K, Miller D, Ullrich K (2015) Necessity entrepreneurship and competitive strategy. *Small Bus Econ* 44:37-54.
- Block JH, Hoogerheide L, Thurik R (2013) Education and entrepreneurial choice: An instrumental variables analysis. *Int Small Bus J* 31:23-33.
- Bøllingtoft A, Uhløi JP (2005) The networked business incubator—leveraging entrepreneurial agency?. *J Bus Venturing* 20:265-290.
- Bosma N (2009) The Geography of Entrepreneurial Activity and Regional Economic Development. Utrecht University (doctoral thesis).
- Bosma N (2013) The Global Entrepreneurship Monitor (GEM) and its impact on entrepreneurship research. *Found Trends Entrep* 9:143-248.
- Braithwaite V, Makkai T, Pittelkow Y (1996) Inglehart's Materialism - Postmaterialism Concept: Clarifying the Dimensionality Debate Through Rokeach's Model of Social Values. *J Appl Soc Psychol* 26:1536-1555.
- Bruton GD, Ahlstrom D, Li HL (2010) Institutional theory and entrepreneurship: where are we now and where do we need to move in the future?. *Entrep Theory Pract* 34:421-440.
- Bruton GD, Ketchen DJ, Ireland RD (2013) Entrepreneurship as a solution to poverty. *J Bus Venturing* 28:683-689.
- Busenitz LW, Lau CM (1996) A cross-cultural cognitive model of new venture creation. *Entrep Theory Pract* 20:25-40.
- Busenitz LW, West GP, Shepherd D, Nelson T, Chandler GN, Zacharakis A (2003) Entrepreneurship research in emergence: past trends and future directions. *J Manage* 29:285-308.

- Carlsson B, Braunerhjelm P, McKelvey M, Olofsson C, Persson L, Ylinenpää H (2013). The evolving domain of entrepreneurship research. *Small Bus Econ* 41:913–930.
- Carree M, van Stel A, Thurik R, Wennekers S (2002) Economic development and business ownership: an analysis using data of 23 OECD countries in the period 1976–1996. *Small Bus Econ* 19:271–290.
- Carree M, van Stel A, Thurik R, Wennekers S (2007) The relationship between economic development and business ownership revisited. *Entrep Region Dev* 19:281–291.
- Casson M, Della Giusta, M (2007). Entrepreneurship and Social Capital Analysing the Impact of Social Networks on Entrepreneurial Activity from a Rational Action Perspective. *Int Small Bus J* 25:220–244.
- Davidsson P (1995) Culture, structure and regional levels of entrepreneurship. *Entrep Region Dev* 7:41–62.
- Davidsson P, Honig B (2003) The role of social and human capital among nascent entrepreneurs. *J Bus Venturing* 18: 301–331.
- Davidsson P, Wiklund J (1997) Values, beliefs and regional variations in new firm formation rates. *J Econ Psychol* 18:179–199.
- Davis DW, Davenport C (1999) Assessing the validity of the postmaterialism index. *Am Polit Sci Rev* 93:649–664.
- Dejardin M (2011) Linking net entry to regional economic growth. *Small Bus Econ* 36:443–460.
- De Clercq D, Arenius P (2006) The role of knowledge in business start-up activity. *Int Small Bus J* 24:339–358.
- De Clercq D, Dakhli M (2009) Personal strain and ethical standards of the self-employed. *J Bus Venturing* 24:477–490.
- Díaz Casero JC, González MA, Sánchez Escobedo MDLC, Coduras Martínez A, Hernández Mogollón RH (2013) Institutional variables, entrepreneurial activity and economic development. *Manage Decis* 51:281–305.
- Duch RM, Taylor MA (1993) Postmaterialism and the economic condition. *Am J Polit Sci* 37:747–779.
- Engelbrecht HJ (2014) A general model of the innovation-subjective well-being nexus. *J Evol Econ* 24:377–397.
- Estrin S, Mickiewicz T, Stephan U (2013) Entrepreneurship, Social Capital, and Institutions: Social and Commercial Entrepreneurship Across Nations. *Entrep Theory Pract* 37:479–504.
- Feldman MP (2014) The character of innovative places: entrepreneurial strategy, economic development, and prosperity. *Small Bus Econ* 43:9–20.
- Florida R (2002) The rise of the creative class. *The Washington Monthly* 34:15–25.

- Foa R, Tanner JC (2012) Methodology of the indices of social development. Institute for Social Studies Working Paper Series, Working paper 2012-4. <http://www.indsocdev.Org>. Accessed 1 October 2014.
- Foa R (2011) Indices of Social Development: Research Applications. International Institute for Social Studies Working Paper Series. <http://www.indsocdev.org>. Accessed 2 October 2014.
- Freytag A, Thurik R (2007) Entrepreneurship and its determinants in a cross-country setting. *J Evol Econ* 17:117-131.
- Freytag A, Thurik R (2010) Introducing entrepreneurship and culture. In: Freytag A, Thurik R (eds) *Entrepreneurship and Culture*. Springer, Berlin Heidelberg, pp 1-8.
- Fritsch M, (2011) *Elgar Handbook of Research on Entrepreneurship and Regional Development. National and Regional Perspectives*. Edward Elgar, Cheltenham.
- Fuentelsaz L, González C, Maicas JP, Montero J (2015) How different formal institutions affect opportunity and necessity entrepreneurship. *BRQ Bus Res Quart* 18:246-258.
- Glaeser EL, Rosenthal SS, Strange WC (2010) Urban economics and entrepreneurship. *J Urban Econ* 67:1-14.
- Gries T, Naudé W (2010) Entrepreneurial activity and structural economic transformation. *Small Bus Econ* 34:13-29.
- Guerrero M, Cunningham JA, Urbano D (2015) Economic impact of entrepreneurial universities' activities: An exploratory study of the United Kingdom. *Res Policy* 44:748-764.
- Hartog C, Parker S, van Stel A, Thurik R (2010) The two-way relationship between entrepreneurship and economic performance. Scales report H200822. <http://core.ac.uk/download/pdf/6332576.pdf>. Accessed 15 September 2014.
- Hayton JC, George G, Zahra SA (2002) National culture and entrepreneurship: A review of behavioral research. *Entrep Theory Pract* 26:33-52.
- Hechavarria DM, Reynolds PD (2009) Cultural norms & business start-ups: the impact of national values on opportunity and necessity entrepreneurs. *Int Entrep Manag J* 5:417-437.
- Hechavarría DM, Terjesen SA, Ingram AE, Renko M, Justo R, Elam A (2016) Taking care of business: the impact of culture and gender on entrepreneurs' blended value creation goals. *Small Bus Econ*. In press, doi: 10.1007/s11187-016-9747-4.
- Henrekson M (2005) Entrepreneurship: A weak link in the welfare state? *Ind Corp Change* 14:437-467.
- Hessels J, van Stel A, Brouwer P, Wennekers S (2007) Social security arrangements and early stage entrepreneurial activity. *Comparat Lab Law Policy J* 28:743-774.

- Hessels J, Van Gelderen M, Thurik R (2008) Entrepreneurial aspirations, motivations, and their drivers. *Small Bus Econ* 31:323-339.
- Hofstede G (1980) *Culture's consequences: International differences in work-related values*. Sage, Beverly Hills, CA.
- Hofstede G, Hofstede GJ, Minkov M (1997) *Cultures and organizations*. McGraw-Hill, New York.
- Hofstede G, Noorderhaven NG, Thurik AR, Uhlaner LM, Wennekers AR, Wildeman RE (2004) Culture's role in entrepreneurial activity: self-employment out of dissatisfaction. In: Brown TE, Ulijn J (eds) *Innovation, entrepreneurship and culture: The interaction between technology, progress and economic growth*. Cheltenham, Edgar Elgar Publishing Ltd, London, pp 162-203.
- Hofstede G (2005) *Culture and Organizations: Software of the mind*. Revised and expanded 2nd edition. McGraw-Hill USA, New York.
- Hofstede GJ (2009) Research on cultures: how to use it in training?. *Europ J Cross-Cult Competence Manage* 1:14-21.
- Hoogendoorn B, Rietveld CA, van Stel A (2016). Belonging, believing, bonding, and behaving: the relationship between religion and business ownership at the country level. *J Evol Econ*. doi: 10.1007/s00191-016-0447-7.
- Holland DV, Shepherd DA (2013) Deciding to persist: Adversity, values, and entrepreneurs' decision policies. *Entrep Theory Pract* 37:331-358.
- House RJ, Hanges PJ, Javidan M, Dorfman PW, Gupta V (2004) *Culture, leadership and organizations: The GLOBE study of 62 societies*. Sage, Thousand Oaks, CA.
- Hunt S, Levie J (2002) Culture as a predictor of entrepreneurial activity. In Babson College, Babson Kauffman Entrepreneurial activity Research Conference (BKERC) (2002-2006). [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1748691](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1748691). Accessed 30 September 2014.
- Inglehart R (1977) *The Silent Revolution: Changing Values and Political Styles in Advanced Industrial Society*. Princeton University Press, Princeton, NJ.
- Inglehart R (1990) *Culture shift in advanced industrial society*. Princeton University Press, Princeton, NJ.
- Inglehart R (1997) *Modernization and Postmodernization: Cultural, Economic, and Political Change in 43 Societies*. Princeton University Press, Princeton, NJ.
- Inglehart R, Baker WE (2000) Modernization, cultural change, and the persistence of traditional values. *Am Sociol Rev* 65:19-51.
- Inglehart R, Welzel C (2005) *Modernization, cultural change, and democracy: The human development sequence*. Cambridge University Press, Cambridge, UK.
- Jennings PD, Greenwood R, Lounsbury MD, Suddaby R (2013) Institutions, entrepreneurs, and communities: A special issue on entrepreneurship. *J Bus Venturing* 28:1-9.



- Jetter M, Agudelo AM, Hassan AR (2015) The effect of democracy on corruption: Income is key. *World Dev* 74:286-304.
- Kantor P (2005) Determinants of women's microenterprise success in Ahmedabad, India: Empowerment and economics. *Fem Econ* 11:63-83.
- Kim BY, Kang Y (2014) Social capital and entrepreneurial activity: A pseudo-panel approach. *J Econ Behav Organ*, 97:47-60.
- Koellinger P (2008) Why are some entrepreneurs more innovative than others?. *Small Bus Econ* 31:21-37.
- Kwon SW, Heflin C, Ruef M (2013) Community Social Capital and Entrepreneurial activity. *Am Sociol Rev* 78:980-1008.
- Lee SM, Peterson SJ (2001) Culture, entrepreneurial orientation, and global competitiveness. *J World Bus* 35:401-416.
- Lee SY, Florida R, Acs Z (2004) Creativity and entrepreneurship: a regional analysis of new firm formation. *Reg Stud* 38:879-891.
- Lee JH, Sohn SY, Ju YH (2011) How Effective Is Government Support for Korean Women Entrepreneurs in Small and Medium Enterprises?. *J Small Bus Manage* 49:599-616.
- Leyden DP, Link AN (2015) Toward a theory of the entrepreneurial process. *Small Bus Econ* 44:475-484.
- Levie J, Autio E (2008) A theoretical grounding and test of the GEM model. *Small Bus Econ* 31:235-263.
- Liao J, Welsch H (2005) Roles of social capital in venture creation: Key dimensions and research implications. *J Small Bus Manage* 43:345-362.
- Liñán F, Fernández-Serrano J, Romero I (2013) Necessity and Opportunity Entrepreneurship: The Mediating Effect of Culture. *Rev Econ Mund* 33:21-47.
- Liñán F, Fernandez-Serrano J (2014) National culture, entrepreneurship and economic development: different patterns across the European Union. *Small Bus Econ* 42:685-701.
- Manolova TS, Eunni RV, Gyoshev BS (2008) Institutional environments for entrepreneurship: evidence from emerging economies in Eastern Europe. *Entrep Theory Pract* 32:203-218.
- Minkov M, Hofstede G (2012) Hofstede's fifth dimension new evidence from the world values survey. *J Cross-Cult Psychol* 43:3-14.
- Minniti M (2004) Entrepreneurial alertness and asymmetric information in a spin-glass model. *J Bus Venturing* 19:637-658.
- Minniti M, Lévesque M (2010) Entrepreneurial types and economic growth. *J Bus Venturing* 25:305-314.
- Mitchell RK, Smith B, Seawright KW, Morse EA (2000) Cross-cultural cognitions and the venture creation decision. *Acad Manage J* 43:974-993.
- McFayden MA, Semadeni M, Cannella AA (2009) Value of strong ties to disconnected others: Examining knowledge creation in biomedicine. *Organ Sci* 20:552-564.

- McGrath RG, MacMillan IC, Scheinberg S (1992a) Elitists, risk-takers, and rugged individualists? An exploratory analysis of cultural differences between entrepreneurs and non-entrepreneurs. *J Bus Venturing* 7:115-135.
- McGrath RG, MacMillan IC, Yang EAY, Tsai W (1992b) Does culture endure, or is it malleable? Issues for entrepreneurial economic development. *J Bus Venturing* 7:441-458.
- Morales CE, Holtschlag C (2013) Post materialist values and entrepreneurial activity: a multilevel approach. *Int J Entrep Behav Res* 19:266-282.
- Morris MH, Avila RA, Alien J (1993) Individualism and the modern corporation: Implications for innovation and entrepreneurship. *J Manage* 19:595-612.
- Mueller SL, Thomas AS (2001) Culture and entrepreneurial potential: A nine country study of locus of control and innovativeness. *J Bus Venturing* 16:51-75.
- Naudé WA, Amorós JE, Cristi M (2013) "Romanticizing Penniless Entrepreneurs?" The Relationship between Start-Ups and Human Wellbeing across Countries. IZA Discussion Paper 7547. <http://www.econstor.eu/handle/10419/80527>. Accessed 15 April 2014.
- Naudé W, Amorós JE, Cristi O (2014) "Surfeiting, the appetite may sicken": entrepreneurship and happiness. *Small Bus Econ* 42:523-540.
- North DC (1990) Institutions, institutional change and economic performance. Cambridge University Press, Cambridge, MA.
- North DC (2005) Understanding the process of economic change. Princeton University Press, Princeton, NJ.
- Noseleit F (2013) Entrepreneurship, structural change, and economic growth. *J Evol Econ* 23:735-766.
- Parker SC, Robson MT (2004) Explaining international variations in self-employment: evidence from a panel of OECD countries. *South Econ J* 71:287-301.
- Pinillos MJ, Reyes L (2011) Relationship between individualist-collectivist culture and entrepreneurial activity: evidence from Global Entrepreneurship Monitor data. *Small Bus Econ*, 37:23-37.
- Porter ME (2013) Social Progress Index 2013. Social Progress Imperative. <http://www.prueba04.info/wpcontent/uploads/2009/01/SocialProgressIndex2013.pdf>. Accessed 30 June 2014.
- Prieger JE, Bampoky C, Blanco LR, Liu A (2016) Economic Growth and the Optimal Level of Entrepreneurship. *World Dev*. doi: 10.1016/j.worlddev.2016.01.013.
- Reynolds P, Bosma N, Autio E, Hunt S, De Bono N, Servais I, Chin N (2005) Global entrepreneurship monitor: Data collection design and implementation 1998-2003. *Small Bus Econ* 24:205-231.
- Rooks G, Klyver K, Sserwanga A (2016) The context of social capital: A comparison of rural and urban entrepreneurs in Uganda. *Entrep Theory Pract* 40:111-130.

- Rojas M (2011) The 'Measurement of economic performance and social progress' report and quality of life: moving forward. *Soc Indic Res* 102:169-180.
- Robinson PB, Sexton EA (1994) The effect of education and experience on self-employment success. *J Bus Venturing* 9:141-156.
- Salimath MS, Cullen JB (2010) Formal and informal institutional effects on entrepreneurship: a synthesis of nation-level research. *Int J Organ Analysis* 18:358-385.
- Saxenian A (1994) *Regional Advantage. Culture and Competition in Silicon Valley and Route 128*. Harvard University Press, Cambridge, MA.
- Schulz T, Baumgartner D (2013) Volunteer organizations: odds or obstacle for small business formation in rural areas? Evidence from Swiss municipalities. *Reg Stud* 47:597-612.
- Schumpeter JA (1911) *The Theory of Economic Development: An Inquiry Into Profits, Capital, Credit, Interest, and the Business Cycle*. Transaction Publishers, New Brunswick, NJ.
- Semlinger K (2008) Cooperation and competition in network governance: regional networks in a globalised economy. *Entrep Region Dev* 20:547-560.
- Shane SA (1992) Why do some societies invent more than others?. *J Bus Venturing* 7:29-46.
- Shane S (1993). Cultural influences on national rates of innovation. *J Bus Venturing* 8:59-73.
- Shane S (1995) Uncertainty avoidance and the preference for innovation championing roles. *J Int Bus Stud* 26:47-68.
- Shane S (2000) Prior knowledge and the discovery of entrepreneurial opportunities. *Organ Sci* 11:448-469.
- Shane S (2009) Why encouraging more people to become entrepreneurs is bad public policy. *Small Bus Econ* 33:141-149.
- Shane S, Venkataraman S (2000) The promise of entrepreneurship as a field of research. *Acad Manage Rev* 25:217-226.
- Sorenson O (2003) Social networks and industrial geography. *J Evol Econ* 13:513-527.
- Spencer JW, Gomez C (2004) The relationship among national institutional structures, economic factors, and domestic entrepreneurial activity: A multicountry study. *J Bus Res* 57:1098-1107.
- Stenholm P, Acs ZJ, Wuebker R (2013) Exploring country-level institutional arrangements on the rate and type of entrepreneurial activity. *J Bus Venturing* 28:176-193.
- Stephan U, Uhlaner LM (2010) Performance-based vs socially supportive culture: A cross-national study of descriptive norms and entrepreneurship. *J Int Bus Stud* 41:1347-1364.

- Stiglitz J, Sen A, Fitoussi JP (2009) The measurement of economic performance and social progress revisited. Reflections and overview. Commission on the Measurement of Economic Performance and Social Progress, Paris. <http://www.ofce.sciences-po.fr/pdf/dtravail/WP2009-33.pdf>. Accessed 15 May 2014.
- Stuetzer M, Obschonka M, Brixy U, Sternberg R, Cantner U (2014) Regional characteristics, opportunity perception and entrepreneurial activities. *Small Bus Econ* 42:221-244.
- Ribeiro Soriano D, Peris-Ortiz M (2011) Subsidizing technology: how to succeed. *J Bus Res* 64:1224-1228.
- Taylor MZ, Wilson S (2012) Does culture still matter?: The effects of individualism on national innovation rates. *J Bus Venturing* 27:234-247.
- Teckchandani A (2014) Do Membership Associations Affect Entrepreneurship? The Effect of Type, Composition, and Engagement. *Nonprof Volunt Sec Q* 43:84S-104S.
- Teece, D. (1986) Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. *Res Policy* 15:285-305.
- Terjesen S, Amorós JE (2010) Female entrepreneurship in Latin America and the Caribbean: Characteristics, drivers and relationship to economic development. *Eur J Dev Res* 22:313-330.
- Thomas AS, Mueller SL (2000) A case for comparative entrepreneurship: Assessing the relevance of culture. *J Int Bus Stud* 31:287-301.
- Thornton PH, Ribeiro-Soriano D, Urbano D (2011) Socio-cultural factors and entrepreneurial activity An overview. *Int Small Bus J*, 29:105-118.
- Tiessen JH (1997) Individualism, collectivism, and entrepreneurship: A framework for international comparative research. *J Bus Venturing* 12:367-384.
- Turok I (2004) Cities, regions and competitiveness. *Reg Stud* 38:1069-1083.
- Turró A, Urbano D, Peris-Ortiz M (2014) Culture and innovation: the moderating effect of cultural values on corporate entrepreneurship. *Technol Forecast Soc* 88:360-369.
- Uhlaner L, Thurik R (2007) Postmaterialism influencing total entrepreneurial activity across nations. *J Evol Econ* 17:161-185.
- Urban B (2010) A focus on networking practices for entrepreneurs in a transition economy. *Transform Bus Econ* 952-66.
- Urban B (2011) Social capital configurations for necessity-driven versus opportunity-driven entrepreneurs. *S Afr J Econ Manage Sci* 14:407-421.
- Urbano D, Alvarez C (2014) Institutional dimensions and entrepreneurial activity: an international study. *Small Bus Econ* 42:703-716.
- Urbano D, Aparicio S (2016) Entrepreneurship capital types and economic growth: International evidence. *Technol Forecast Soc* 102:34-44.

- van Praag CM, Versloot PH (2007) What is the value of entrepreneurship? A review of recent research. *Small Bus Econ* 29:351–382
- van Stel A, Carree M, Thurik R (2005) The effect of entrepreneurial activity on national economic growth. *Small Bus Econ* 24:311-321.
- van Staveren I, Webbink E, de Haan A, Foa R (2014) The Last Mile in Analyzing Wellbeing and Poverty: Indices of Social Development. *Forum for Social Economics* 43:8-26.
- Veciana JM, Urbano D (2008) The institutional approach to entrepreneurship research. Introduction. *Int Entrep Manag J* 4:365-379.
- Verheul I, Wennekers S, Audretsch D, Thurik R (2002) An eclectic theory of entrepreneurship: policies, institutions and culture. In: Audretsch D, Thurik R, Verheul I, Wennekers S (eds) *Entrepreneurship: Determinants and policy in a European-US comparison*. Springer US, New York, pp 11-81.
- Verheul I, van Stel AV, Thurik R (2006). Explaining female and male entrepreneurship at the country level. *Entrep Region Dev* 18:151-183.
- Vinogradov E, Kolvereid L (2007) Cultural background, human capital and self-employment rates among immigrants in Norway. *Entrep Region Dev* 19:359-376.
- Webbink E (2012) Inclusion of Minorities. The Indices of Social Development. <http://www.indsocdev.org/resources/ISD%20Inclusion%20of%20Minorities.pdf>. Accessed 12 September 2014.
- Wennekers S, Thurik R (1999) Linking entrepreneurship and economic growth. *Small Bus Econ* 13:27-55.
- Wennekers S, van Stel A, Thurik R, Reynolds P (2005) Nascent entrepreneurship and the level of economic development. *Small Bus Econ* 24:293–309.
- Wennekers S, Thurik R, van Stel A, Noorderhaven N (2007) Uncertainty Avoidance and the Rate of Business Ownership across 21 OECD Countries, 1976-2004. *J Evol Econ* 17:133-160.
- White H (1980) A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica* 48:817–830.
- Williamson OE (2000) The new institutional economics: taking stock, looking ahead. *J Econ Lit* 38:595-613.
- Wooldridge J (2012) *Introductory econometrics: A modern approach* (5th Ed.). Cengage Learning, Mason, OH.
- Wong PK, Ho YP, Autio E (2005) Entrepreneurship, innovation and economic growth: Evidence from GEM data. *Small Bus Econ* 24:335-350.

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## Tables

**Table 1. Variables description**

<b>Dependent variable</b>	<b>Description</b>	<b>Source<sup>a</sup></b>
TEA innovative	Percentage within early-stage Entrepreneurial Activity (TEA) considering new market (few/no business offer the same product).	GEM, 2012.
TEA OPP	Percentage within early-stage Entrepreneurial activity (TEA) motivated to pursue perceived business opportunities.	
TEA NEC	Percentage within early-stage Entrepreneurial activity (TEA) involved in entrepreneurship because they have no better option for work.	
<b>Independent variables</b>	<b>Description</b>	<b>Source<sup>a</sup></b>
Voluntary spirit (VOL)	This dimension measures the membership in local voluntary associations. Values from 0 to 1.	ISD, 2010.

Survival vs. self-expression values (SSV)	Original values rank from -2,5 to 2,5 with higher values corresponding to higher scores of self-expression values. For practical reasons the values were changed to a 0 to 5 scale.	WVS, 5th wave (2005-2009).
Power distance (PDI)	Societies where PDI is high, rank near 1, meanwhile societies where PDI is low, rank near 0.	HC, 2010.
Control variable	Description	Source <sup>a</sup>
Level of development-Human Development Index (HDI)	Societies with a high HDI rank near 100, while societies where the HDI is low rank near.	UNDP, 2012.
Percentage of female population	The percentage of the population that is female. Population is based on the <i>de facto</i> definition of population.	WDI, 2012.
GDP PPP	Gross domestic product per capita converted to international dollars using purchasing power parity rates. Data are in constant 2011 international dollars.	
Health expenditure	Recurrent and capital spending from government (central and local) budgets, external borrowings and grants (including donations from international agencies and nongovernmental organizations), and social (or compulsory) health insurance funds.	
Age structure of population	Proportion of the population ages 15 and older that is economically active.	
Unemployment rate	Share of the labor force that is without work but available for and seeking employment.	

<sup>a</sup> Global entrepreneurship Monitor (GEM): <http://www.gemconsortium.org/>; Indices of Social Development (ISD): <http://www.indsocdev.org/data-access.html>; World Values Survey (WVS): <http://www.worldvaluessurvey.org/wvs.jsp>; The Hofstede Centre (HC): <http://geert.hofstede.com/countries.html>; United Nations Development Programme (UNDP): <http://hdr.undp.org/en/data>; World Development Indicators (WDI): <http://data.worldbank.org/data-catalog/world-development-indicators>.

**Table 2. Descriptive statistics and correlation matrix**

Variable	Mean	Std. Dev.	Min.	Max.	1	2	3	4
1 TEA Innovative	44.901	9.881	17.951	63.034	1			
2 TEA OPP	47.299	13.381	18.000	76.000	0.125	1		

3	TEA NEC	24.955	11.898	4.000	61.000	-0.189	-0.626*	1	
4	Voluntary spirit	0.516	0.102	0.320	0.785	0.265	0.135	-0.164	1
5	Survival vs. self-expression values	2.834	1.064	0.950	4.850	0.391	0.342	-0.673*	0.355
6	Power distance	59.774	20.332	13.000	104.000	-0.283	-0.292	0.407*	-0.265
7	Human Development Index	0.773	0.121	0.411	0.943	0.2723	0.319*	-0.425*	-0.2293
8	Percentage female population	50.790	1.152	48.186	54.303	0.172	-0.044	-0.030	-0.454*
9	GDP ppp	24,509.320	17,391.430	739.862	89,153.060	0.2752	0.435*	-0.556*	0.0957
10	Health expenditure	13.530	4.577	4.297	24.177	0.111	0.034	-0.153	0.167
11	Age structure of population	61.980	8.330	42.400	83.000	0.024	0.137	-0.006	0.250
12	Health expenditure	9.031	6.126	0.700	31.000	0.1956	-0.407*	0.3127	-0.2119
		<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
5	Survival vs. self-expression values	<b>1</b>							
6	Power distance	-0.649*	1						
7	Human Development Index	0.641*	-0.614*	1					
8	Percentage female population	-0.073	-0.119	0.316	1.000				
9	GDP ppp	0.603*	-0.528*	0.794*	0.128	1			
10	Health expenditure	0.559*	-0.364*	0.148	0.018	0.2554	1		
11	Age structure of population	-0.001	0.078	-0.404*	-0.183	-0.2207	0.1203	1	
12	Unemployment rate	-0.097	-0.234	0.058	0.141	-0.095	-0.100	-0.403*	1

\* Significant at  $p < 0.01$ .

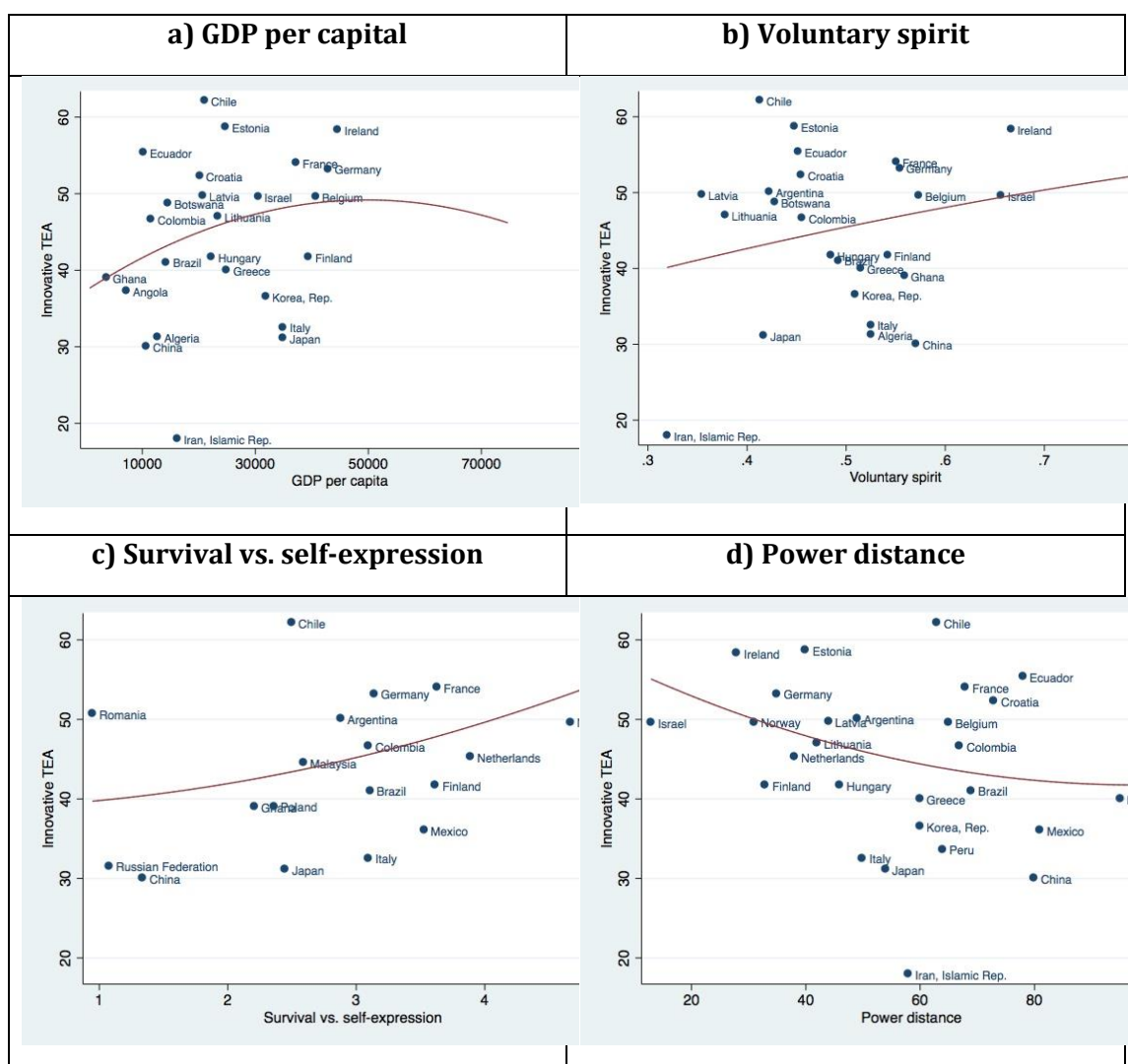


**Table 3. Social progress orientation predicting innovative, opportunity and necessity entrepreneurship**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Ln TEA Innovative	Ln TEA OPP	Ln TEA NEC	Ln TEA Innovative	Ln TEA OPP	Ln TEA NEC	Ln TEA Innovative	Ln TEA OPP	Ln TEA NEC
Ln Voluntary spirit	0.600*** (0.203)	0.121 (0.160)	-0.496* (0.258)						
Ln Survival vs. self-expression values				0.109 (0.154)	0.080 (0.147)	-0.564*** (0.190)			
Ln Power distance							-0.047 (0.099)	-0.126 (0.094)	0.264** (0.128)
Ln Human Development Index	0.367 (0.630)	-0.781 (0.576)	2.410*** (0.724)	-0.644 (1.286)	-0.410 (1.378)	5.220*** (1.438)	0.062 (1.377)	-0.444 (0.765)	4.295*** (1.158)
Ln percentage female population	3.099* (1.564)	0.586 (1.777)	-2.227 (2.590)	-2.010 (2.855)	-0.835 (2.540)	1.223 (3.064)	1.491 (2.014)	0.936 (1.262)	-0.229 (2.445)
Ln GDP ppp	0.030 (0.116)	0.305*** (0.111)	-0.831*** (0.138)	0.157 (0.207)	0.348 (0.235)	-1.191*** (0.238)	0.121 (0.216)	0.286** (0.127)	-1.102*** (0.159)
Ln health expenditure	-0.009 (0.125)	-0.012 (0.084)	-0.313** (0.130)	0.086 (0.113)	-0.235* (0.129)	-0.312 (0.207)	-0.051 (0.121)	-0.125 (0.100)	-0.247 (0.170)
Ln age structure of population	0.731** (0.283)	0.562 (0.469)	-0.743* (0.441)	-0.425 (0.803)	1.442* (0.717)	-0.387 (0.612)	1.037 (0.689)	0.826 (0.528)	-1.438*** (0.419)
Ln unemployment rate	0.162*** (0.050)	-0.144*** (0.051)	0.224** (0.091)	0.060 (0.060)	-0.154*** (0.050)	0.219 (0.131)	0.149** (0.066)	-0.163*** (0.055)	0.093 (0.101)
Constant	-7.386 (6.695)	-1.689 (7.171)	21.311* (10.627)	9.601 (12.012)	4.328 (10.665)	13.030 (11.910)	-2.055 (8.831)	-2.008 (5.216)	15.006 (10.488)
N	48	56	56	29	33	33	41	51	51
R <sup>2</sup>	0.421	0.365	0.619	0.244	0.568	0.699	0.256	0.478	0.630
Root MSE	0.204	0.258	0.367	0.222	0.263	0.363	0.234	0.243	0.359
VIF	6.11	5.39	5.39	5.88	6.40	6.40	3.13	3.85	3.85
White's test (p-value)	0.002	0.067	0.026	0.490	0.036	0.107	0.001	0.110	0.207
AIC	9.069	14.563	53.909	1.558	12.247	33.653	4.479	7.675	47.632
BIC	5.901	30.765	70.112	12.496	24.219	45.625	18.187	23.129	63.086

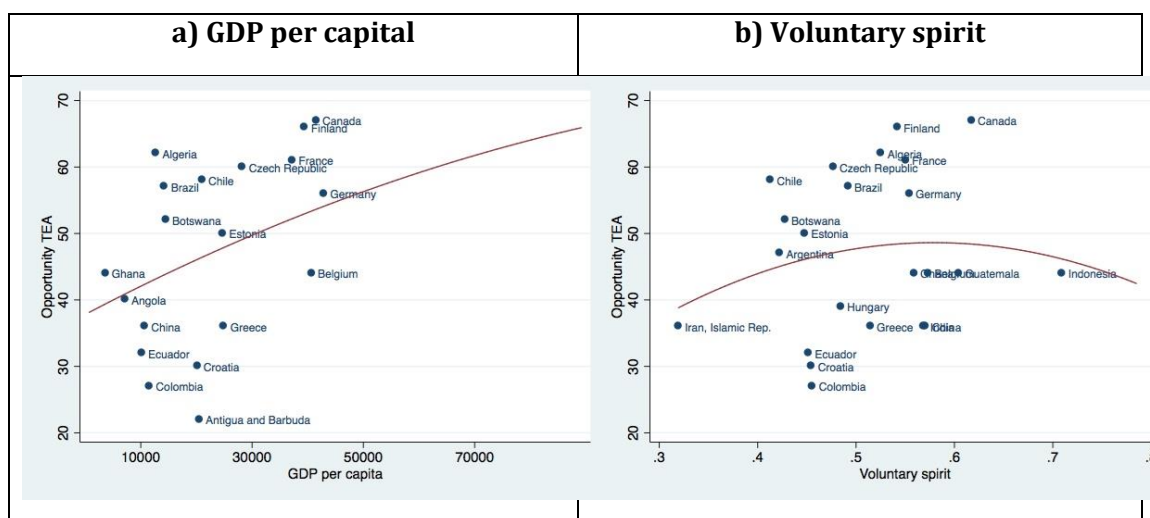
\*\*\* Significant at  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ . Robust standard errors in parentheses.

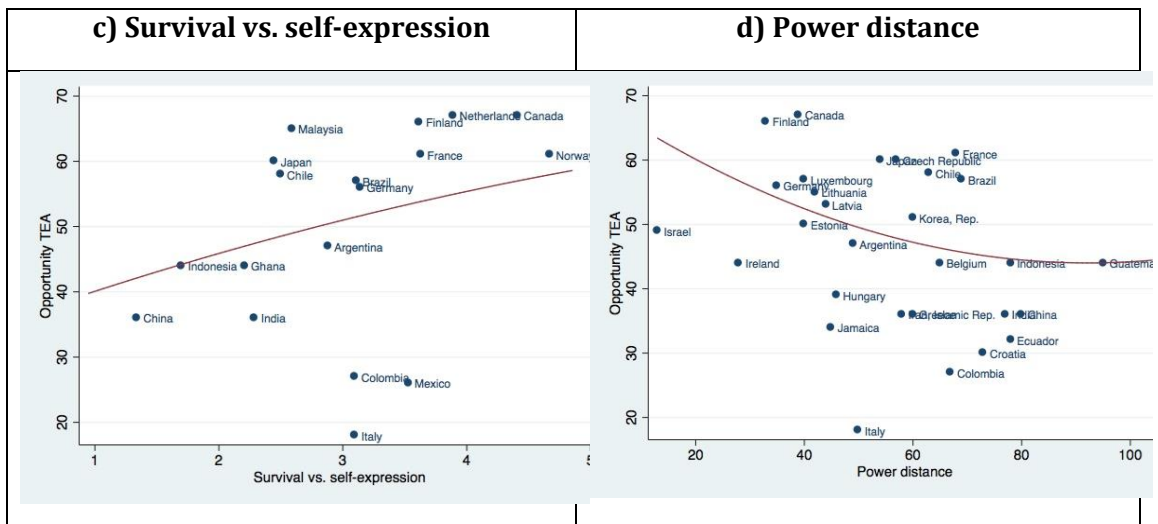
## Annex 1. Innovative TEA distribution across the economic level and SPO variables



Note: In order to obtain clear graphs, we have not included all countries in the scatter plot. Nonetheless, the tendency line was computed taking into account the whole sample.

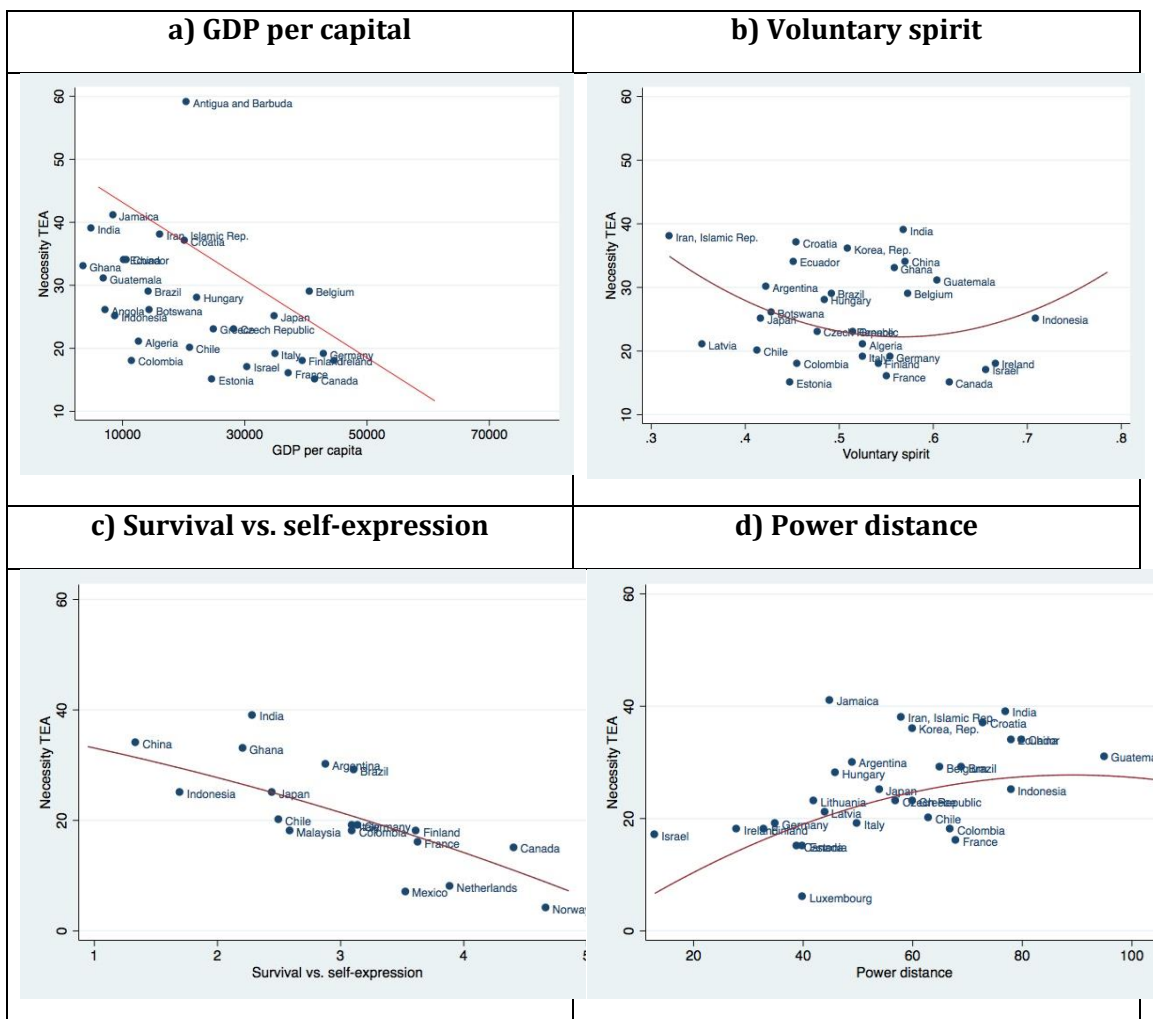
## Annex 2. Opportunity TEA distribution across the economic level and SPO variables





Note: In order to obtain clear graphs, we have not included all countries in the scatter plot. Nonetheless, the tendency line was computed taking into account the whole sample.

### Annex 3. Necessity TEA distribution across the economic level and SPO variables



Note: In order to obtain clear graphs, we have not included all countries in the scatter plot. Nonetheless, the tendency line was computed taking into account the whole sample.

#### Annex 4. List of countries

Countries	
1 Algeria	35 Luxembourg
2 Angola	36 Macedonia, FYR
3 Antigua and Barbuda	37 Malawi
4 Argentina	38 Malaysia
5 Belgium	39 Mexico
6 Botswana	40 Netherlands
7 Brazil	41 Nigeria
8 Canada	42 Norway
9 Chile	43 Panama
10 China	44 Peru
11 Colombia	45 Philippines
12 Croatia	46 Poland
13 Czech Republic	47 Portugal
14 Ecuador	48 Puerto Rico
15 Estonia	49 Romania
16 Finland	50 Russian Federation
17 France	51 Singapore
18 Germany	52 Slovak Republic
19 Ghana	53 Slovenia
20 Greece	54 South Africa
21 Guatemala	55 Spain
22 Hungary	56 Suriname
23 India	57 Sweden
24 Indonesia	58 Switzerland
25 Iran, Islamic Rep.	59 Taiwan, China
26 Ireland	60 Thailand
27 Israel	61 Trinidad and Tobago
28 Italy	62 Uganda
29 Jamaica	63 United Kingdom
30 Japan	64 United States
31 Korea, Rep.	65 Uruguay
32 Latvia	66 Vietnam
33 Libya	67 Zambia
34 Lithuania	

**Annex 5. Social progress orientation predicting an alternative measure of innovative TEA (new product)**

	(1) Ln TEA Innovative (new product)	(2) Ln TEA Innovative (new product)	(3) Ln TEA Innovative (new product)
Ln Voluntary spirit	0.350 (0.258)		
Ln Survival vs. self-expression values		0.081 (0.135)	
Ln Power distance			-0.198 (0.149)
Ln Human Development Index	-0.160 (0.935)	3.616* (1.930)	-0.474 (1.581)
Ln percentage female population	0.464 (2.502)	-9.852*** (2.899)	-3.018 (2.616)
Ln GDP ppp	-0.038 (0.205)	-1.050** (0.434)	-0.095 (0.348)
Ln health expenditure	0.082 (0.155)	0.711*** (0.143)	0.230 (0.228)
Ln age structure of population	-0.496 (0.470)	-1.953*** (0.630)	-0.093 (0.857)
Ln unemployment rate	-0.113 (0.083)	0.048 (0.095)	0.030 (0.092)
Constant	1.849 (9.617)	51.094*** (10.706)	16.755 (11.646)
N	44	26	42
R <sup>2</sup>	0.115	0.552	0.119
Root MSE	0.308	0.292	0.345
VIF	4.24	7.67	4.74
White's test (p-value)	0.630	0.721	0.454
AIC	28.290	16.260	36.954
BIC	42.564	26.325	50.856

\*\*\* Significant at  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ . Robust standard errors in parentheses.

Note: TEA innovative (new product): Percentage of early-stage Entrepreneurial Activity (TEA) reporting that the product or service is new to at least some customers.